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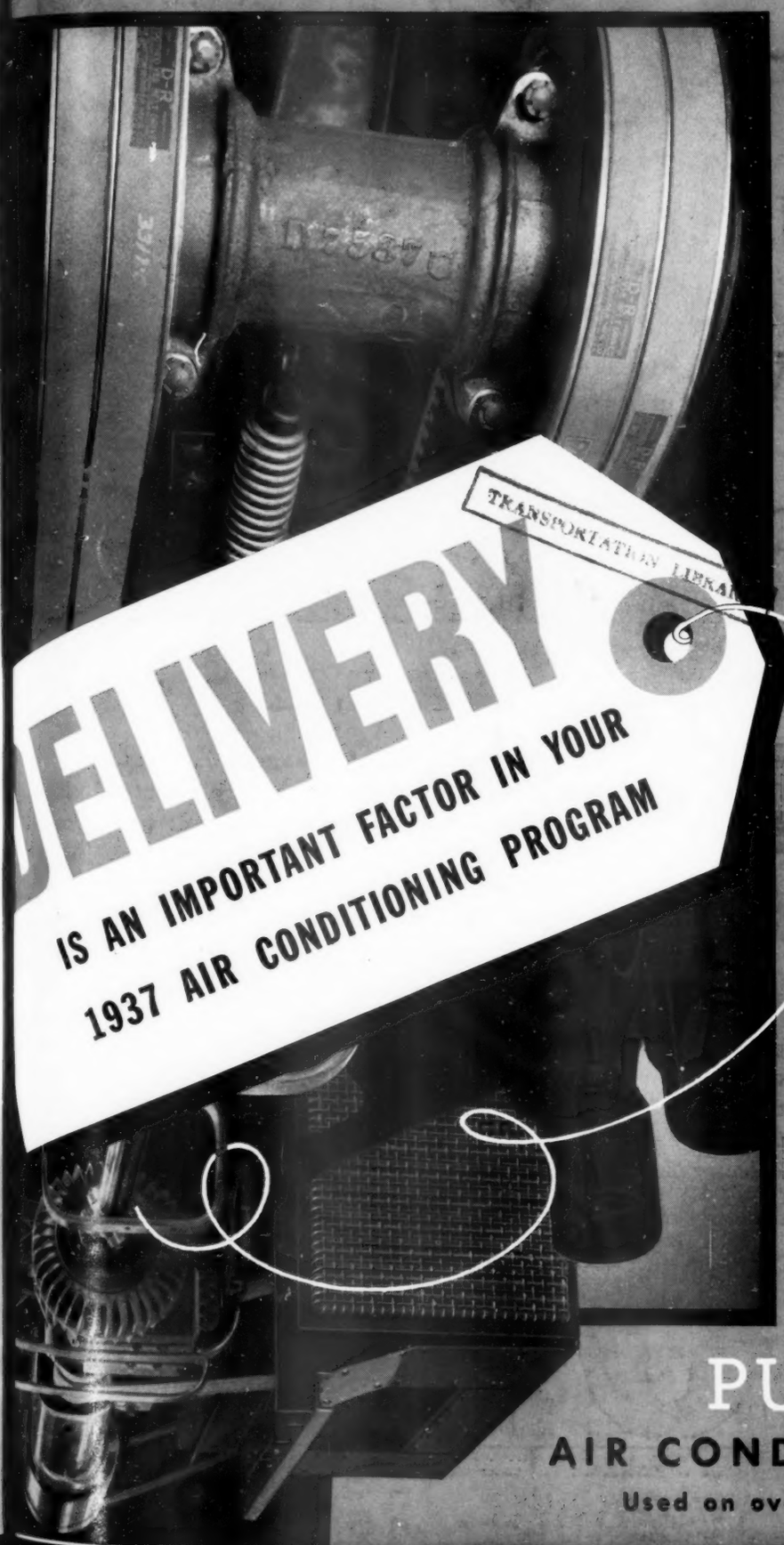
JANUARY 30, 1937

FEB 3 1937

Railway Age

Founded in 1856



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See Yourself as Your Passenger Sees You 217

Clarke A. Richards, a seasoned traveler, asks many questions about improvements in service at low cost.

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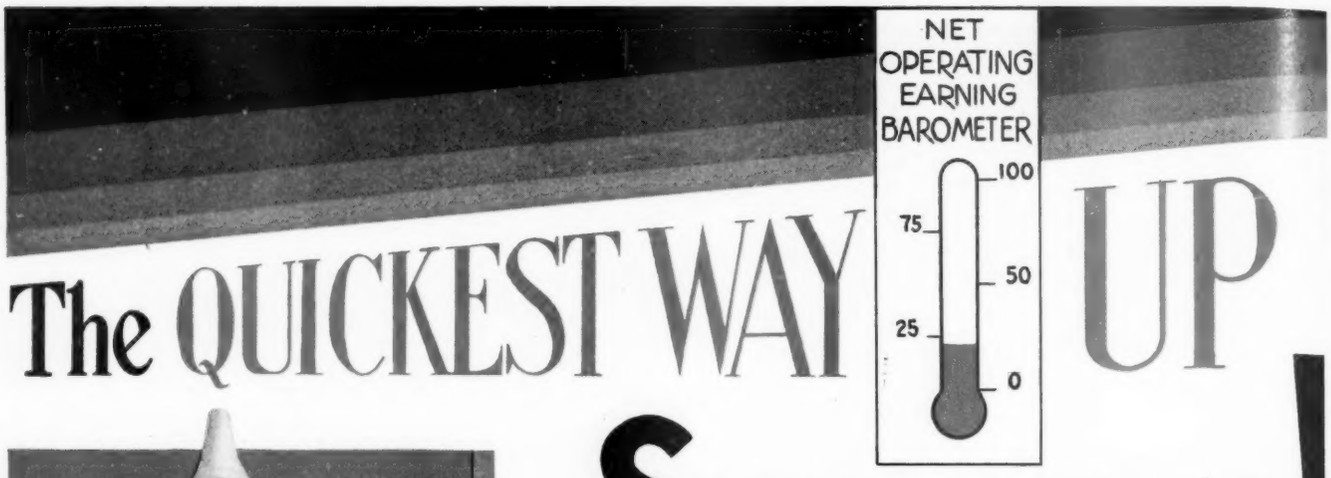
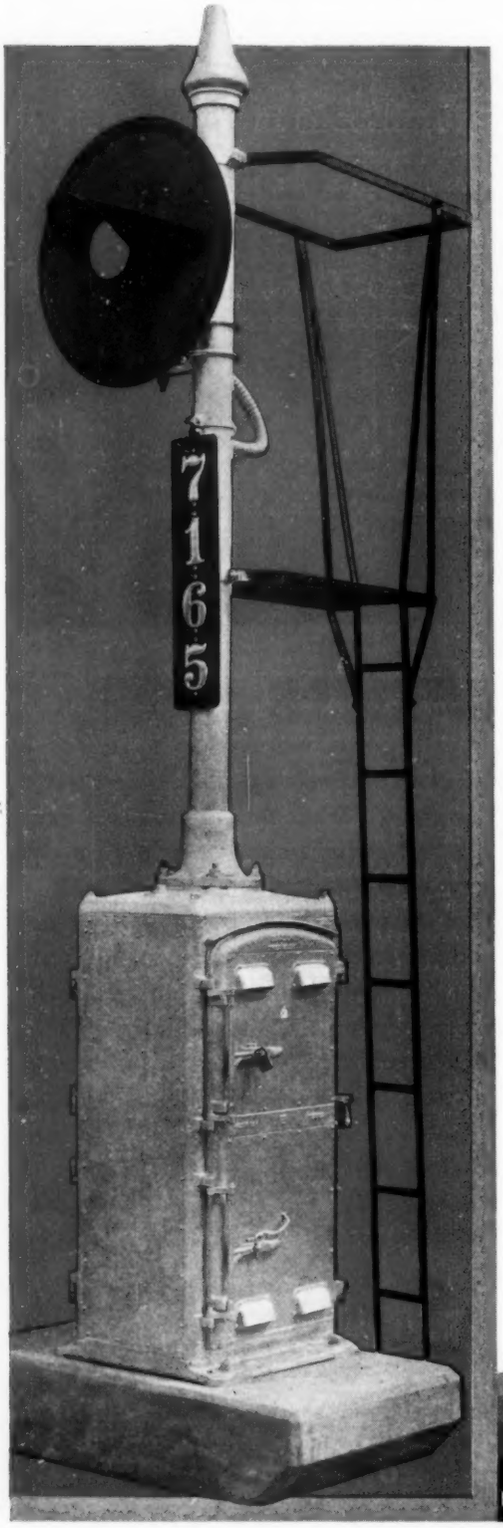


The QUICKEST WAY UP

SIGNALING!



SIGNALING is now recognized as an essential factor in safe, expedited and economical railroading. The effectiveness of modern signal systems is reflected in net earnings from the moment they are placed in service.

Railway operating statistics disclose the fact that improvement in train performance parallels the increase in road miles signaled and that the roads showing the greatest reduction in cost per ton mile and the greatest increase in train load and speed are among those well signaled.

The savings of apparently minor signaling projects are frequently surprising. One road, reviewing the economics of 175 signaling projects, found that the net annual saving was 79 per cent. The average expenditure was only $3,269 and the average annual net saving $2,612.

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The Week at a Glance

CARLOADINGS: Freight car loadings for the week ended January 16 totaled 700 thousand—up 14.5 per cent over 1936 and 24.4 per cent over 1935. All commodity classifications ran higher than last year except grain.

●

DELUGE: Railroads have been badly damaged by the flood which is sweeping the Ohio Valley. Service into the inundated communities is badly crippled and through traffic via Ohio river crossings has practically stopped. On top of all this, the roads are doing a heroic job of relief work. Details, so far as they were available at the time of going to press, are given in an illustrated article elsewhere herein.

●

FREIGHT CAR DESIGN: Pullman-Standard's engineer of research (W. H. Mussey), in a paper published herein, traces the development of freight car design from the days of a load ratio to dead weight of 1 to 1 up to the present modern accomplishment of as high as 4 to 1. Guess-work has largely vanished, and cars now are built with a minimum of understressed and overstressed parts, and Mr. Mussey tells how this has been accomplished.

●

"FORGOTTEN" RAILROADERS: Taking the President's solicitude for the "underprivileged" as set forth in his inaugural address as its text, the leading editorial herein points out that the "forgotten men" in transportation are the furloughed employees of the railways and railway equipment manufacturers; and that the primary concern of the railway industry and the railway unions, insofar as they follow the President's leadership, should be to establish conditions which will restore these men to the payroll, rather than to drain off increased prosperity as fast as it occurs into the pockets of those who already have steady jobs at good wages.

●

R.R.'S AND INDUSTRY: In an address before the Railroad Club at Atlanta last week, reported in part herein, the editor of *Railway Age* pointed out that 30 years ago, according to the Dow-Jones index, railroad stocks on the average were selling at 132 and industrials at 96. Now the railroads are selling at 53 and industrials at 179—a decrease of 60 per cent for the former and an increase of 85 per cent for the latter. The cause of the railroads' loss in market esteem is traced to regulatory policies; and now the government is moving in on other industry with its regulatory program.

●

BRIGHT OUTLOOK: Even failing legislative relief to which they are in justice entitled, the railroads' future is far from discouraging, according to Arundel Cotter, writing in Barron's Weekly for January 25. Citing the B. & M., Mr. Cotter says savings of 17½ per cent have been made in operating expenses since 1929, based on 1929 traffic volume; prior to depression, road had 4,000 work train days per year—now it could get along with 1,000, even with 1929 traffic. Better service, lower costs will extricate the roads from their difficulties in Mr. Cotter's opinion.

●

FOXY GRANDPA: Commissioner Eastman, speaking in Boston last week, hailed "Old Man Railroad" as back in circulation again, completely recovered from "incipient senility" brought on, at least in part, by a "rich diet" and "indigestible sauces" composed of 3.6-cent fares and Pullman surcharges. The I.C.C., it appears, by rationing the patient as to fat has brought back his health. But the old gentleman, Mr. Eastman thinks, is still timid where he should be bold.

●

TRACK—HOW STRONG?: What is the most desirable strength of track, from the point of view of maintenance economy? Chief Engineer Reese of the K. C. S. in an address published herein weighs the major factors bearing on this question, pointing out the conditions which increase maintenance costs and the best means of eliminating them. Ties, ballast, rail—all are considered. The latter, he concludes, should be of 130 lb. section or heavier, even for moderate traffic.

●

A PASSENGER COMPLAINS: The railways rightly claim credit for vast improvements in their passenger service in recent years, but they still have a long way to go. This is the conclusion of a seasoned traveler who, in an article herein, presents his criticisms in detail. His main point is that a few costly improvements have been made and a multitude of inexpensive ones overlooked; and that there's too big a gap between the railroads' best and their worst, or even their average. You will not agree with all of his complaints (any more than we do)—but it pays to listen to a cash customer's kicks even when he is wrong.

●

MORGENTHAU FUMES: The Secretary of the Treasury is understood to have written to the President objecting to the I.C.C. suggestions for modifying the penalty income tax law so as to enable the railroads to pay their debts—the Secretary's view being that the I.C.C. thereby put its oar into the business of the executive branch of the government, whereas it is an arm of Congress. Somewhere or other we seem to recollect a provision to the effect that revenue measures are supposed to originate in the Lower House of Congress, and hence are something which an "arm" of that body might be allowed to have ideas about, but possibly that is just an old-fashioned, horse-and-buggy notion of ours.

DIVIDEND BOOST: The Norfolk & Western directors on January 26 raised the regular quarterly dividend from $2 to $2.50.

●

EX PARTE 115: Commissioner Aitchison on January 26 resumed the hearings in the freight rate revision case, after an adjournment for 11 days.

●

EQUIPMENT MARKETS: Thirty-four locomotives and 4,120 freight cars are reported ordered in the Equipment and Supplies columns herein. In addition there is reported a court authorization granted for 1,000 freight cars and 13 passenger cars; with 1,022 more freight cars pending court approval. Inquiries are reported for 10 passenger cars, 14 locomotives and 100 freight cars.

●

A. T. & N. FINANCES: The I.C.C. Bureau of Finance in recommending to the Commission a plan for reorganizing the Alabama, Tennessee & Northern enunciates policies which will be of considerable importance if given general application. Among these are a view that interest arrearages on funded debt have equal claim with principal; that R.F.C. loans have no priority to which they are not entitled by the collateral security supporting them; that income bonds are objectionable; that if stock is worthless, in view of the magnitude of prior claims, then there should be no hesitation in wiping it out.

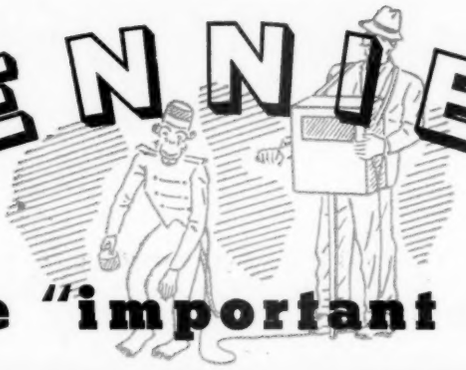
●

STORM OVER I.C.C.: The President's proposed reorganization of the government which would strip the Interstate Commerce Commission of all except "judicial" powers will not be adopted without controversy. Mr. Eastman, while mentioning no names, in a speech in Boston last week emphasized that the I.C.C. is an arm "not of the executive branch of the government, but of the legislative." John Benton of the state commissions' association has issued a bulletin to the membership which shows a warmth for the proposal certainly not higher than "luke." And the magazine "Labor" is sour on the scheme too, because it does not want the Commerce Department aggrandized.

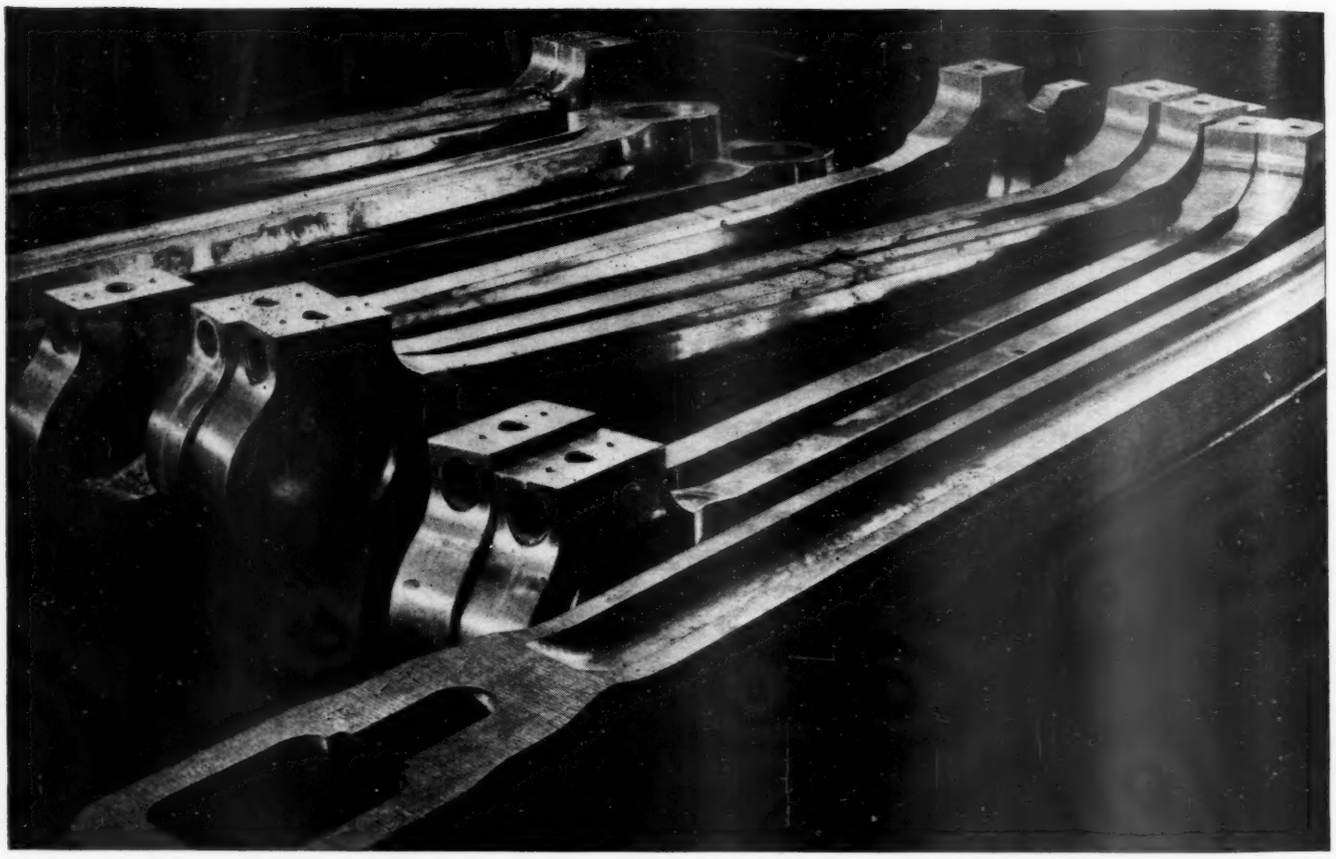
●

6-HOUR DAY: In England the Railway Staff National Tribunal, headed by the eminent economist, Sir Arthur Salter, has denied the claim of the enginemen's and firemen's union for a 6-hour day—as reported in further detail elsewhere herein. The tribunal thumbed down the enginemen's claim because, extended to all employees, it would cost ¼ billion dollars; and to pay that sum, stockholders and bondholders would be deprived of all interest and dividends. The latter, it appears, are still entitled to some consideration—and something to show for the money they have put up, without which there would be no railways to provide jobs.

PENNIES



that are "important money"



A locomotive side rod starts as a billet of steel costing only a few cents a pound. » » » Forged and machined ready for application, its pound price is increased by the added cost of labor. » » » This is true whether made of ordinary steel or of*Agathon Alloy Steel. In the finished rod there is a relatively small difference in cost between them. » » » These few extra pennies per pound in the billet become important money in the finished product. Because Agathon Alloy Steel has higher tensile strength, greater resistance to shock and vibration, greater dependability in service, it permits lighter weight parts that reduce locomotive maintenance, and permits higher train speeds with greater safety. » » » Republic produces both carbon steels and alloy steels for forged parts, but for reciprocating and revolving parts, Agathon Alloy Steel is recommended. » » » For further information address Department RA.

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RAILWAY AGE

The "Underprivileged" and Railway Labor Policies

Here is the challenge to our democracy: In this nation I see tens of millions of its citizens—a substantial part of its whole population—who at this very moment are denied the greater part of what the very lowest standards of today call the necessities of life.

I see millions of families trying to live on incomes so meager that the pall of family disaster hangs over them day by day.

I see millions whose daily lives in city and on farm continue under conditions labeled indecent by a so-called polite society half a century ago.

I see millions denied education, recreation and the opportunity to better their lot and the lot of their children.

I see millions lacking the means to buy the products of farm and factory and by their poverty denying work and productiveness to many other millions.

I see one-third of a nation ill-housed, ill-clad, ill-nourished.—*From President Roosevelt's Inaugural Address.*

Perhaps there was some exaggeration in the above statements. But let us assume they are entirely correct. Why do the conditions described exist? Partly because of maldistribution of income, but mainly *because of failure to produce an adequate total national income.* The Department of Commerce has estimated that the national income in 1936 was about 60 billion dollars. That was about $460 per capita, or less than an average of $2,000 per family. What, then, is the main thing required to provide an "abundant life for all"? It would not provide abundance merely to increase wages and prices. That would increase the amount of money required to buy food and clothing and pay the rental of a house for a family, but it would not increase or improve the food, raiment and shelter that the family could get. The main thing required to provide an "abundant life for all" is a *large increase in the production* of food, raiment, housing and all the other necessities, comforts and luxuries that make an abundant life possible.

Less Work versus "An Abundant Life"

And what is the principal means now being advocated to provide an abundant life? A reduction of the working hours and an increase of the hourly wages of employees in *transportation and industry.* Now, putting more persons at work in transportation and industry without reducing hours of work would increase production and thereby contribute toward a more abundant life for all. But reducing working hours in transportation and industry from, say, 8 to 6 a day, and then increasing the number of employees and their hourly wages correspondingly would not increase production at all because it would curtail production per employee as much in proportion as it increased the number of employees. But it would increase costs of transportation and production.

And who would pay these increased costs? They would be paid in increased taxes, rates or prices partly by the employees of transportation and industry who had their working hours reduced and their hourly wages advanced; *but they would be paid mainly by that large majority of the population who would not have their working hours reduced or their hourly wages advanced.* In other words, the proposed policy would not increase the national income, but would simply cause it to be divided more favorably to the employees of transportation and industry and less favorably to the large majority of the population not employed in transportation and industry. Which of these classes is already favored, then, in the distribution of the national income?

The President in the statements quoted from his inaugural address has set forth clearly the unfortunate result which has arisen, among other contributing factors, from an economic system which—instead of being free—is "managed" wherever any group has been able to effect such "management" in its own interest. There is, and by the nature of things must be, a large proportion of the citizenry who are not the beneficiaries of monopoly power or political favoritism—unable, in other words, to "manage" their incomes. Whenever any group—be they capitalists, or politicians or a labor union—contrives to secure, by "managing" economic processes, a share of the national income disproportionate to its contribution to that income, the residue of income remaining for those who have no control of what they receive is thereby reduced, and the productive efficiency of the whole economy is reduced. Farmers and farm laborers, unskilled and unorganized labor, small business men put out of business by chain store competition, and unemployed industrial workers—these and other unprotected groups are the sufferers in present society whether it was or was not to them that the President referred in his address.

Who Are the "Underprivileged?"

There is no hope of relieving them and thus meeting "the challenge of our democracy," while at the same time perpetuating the monopolistic and political and other "managed" rewards which favored groups are now receiving. We can, of course, increase our total national income—and we are doing so—so that the income which will trickle down to the unprotected residue of the population may increase; but that can happen only if the groups now favored are prevented, or voluntarily abstain, from absorbing all the increase in income

as it occurs; and the total national income can never be increased enough to provide an abundant life for all as long as some, whether capitalists, or members of labor unions, are allowed to use the power of monopoly to seize and hold more than their fair share of the national income.

Who are the persons in the transportation industry who are "denied the greater part of what the very lowest standards of today call the necessities of life?" Without doubt they are:

1. Furloughed railroad employees.
2. Furloughed employees of concerns which manufacture railroad equipment and supplies.
3. Underpaid and overworked transportation employees, the great bulk of whom are employed in truck or water transportation (although, according to a survey made by the Co-ordinator of Transportation, there are a few railroad employees also who must be so classified.)

There is no question as to the justice or the wisdom of the President's concern for the underprivileged, whatever may be the accuracy of his estimate of their number. What then can railroad managements do as their share in advancing the goal which the President has announced?

What Can Railway Management Do?

Unfortunately, they cannot do much, because the managerial decisions in the railroad industry which govern the distribution of income are to a very large extent made, not by railroad managers, but by regulatory commissions, political bodies and the railway labor organizations. But railway managers can at least contribute all that is possible to them by resisting to the utmost regulatory, political and labor demands which would have the effect of curtailing the re-employment of furloughed railroad employees and employees of concerns which manufacture railroad equipment and supplies. They can correct the few instances of long hours and low pay on the railroads to which the Co-ordinator directed attention; and they can do their part by negotiation to end the stalemate on railway pensions so that superannuated employees may be retired and openings thereby created for younger furloughed men.

The contribution that managements can make is, however, small by comparison with that of which organized railway labor is capable. The blind-spot in the policy of the labor organizations so far has been that they have concerned themselves wholly in advancing the well-being of employees actually on the payroll. The labor organizations have not concerned themselves in the slightest with the effect their restrictive policies inevitably have on total employment, either on the railroads or in the railway manufacturing industry. They have concerned themselves not at all with the effect that high hourly railway wages have upon the public that ultimately pays the freight. Theirs has so far been a policy entirely of "to him who hath shall be given," which is precisely the antithesis of the policy the President outlined in his inaugural address.

It is perfectly obvious that train and engine service employees who have steady jobs by no possible stretch of the imagination belong in the category of the underprivileged. Their hours are easier and their wages are higher, as has often been shown in these pages, than those of any other class of industrial workers anywhere. The earnings, the security of tenure and the favorable working conditions of the more experienced of these employees give them a social status almost equivalent to that of the learned professions. Now that railroad earnings are improving, is there any economic or social reason why the industry should hand over the increase to these employees, as they demand, rather than meet "the challenge to our democracy" to keep freight rates to the consuming public down while using available earnings to provide social amelioration where the real need exists—that is, to re-employ furloughed railway workers, and to place orders for needed equipment so that manufacturers of railway equipment may employ more men?

Effects of Labor Union Policies

The railroad labor organizations have at least recognized their own interest in one phase of improving the condition of the "submerged" portion of transport employees—namely, truck drivers. They have appeared at hearings of the Interstate Commerce Commission and various state commissions and legislative committees in support of reasonable hours and working conditions for motor transport employees. But that is only one of the points of "the challenge to our democracy" in a denial of decent conditions of living to persons connected with transportation. The others have to do with furloughed railroad employees and furloughed employees of concerns which manufacture railroad equipment and supplies. The railroad labor organizations have done nothing to ameliorate the conditions of such employees throughout the depression. Instead they have been intent on maintaining or increasing the standards of those safely on the payroll. By the policies they have lately been following, the unions are doing their level best to discourage re-employment, and instead to insure that all the benefits of increased earnings shall go to those who now have jobs.

The effect of organized labor's policy of maintaining high money wages throughout the depression had the inevitable effect of forcing a sharper reduction in employment than would have been necessary, had reductions proportionate to the decline in living costs been agreed to. Now that revenues are increasing the labor organizations, by every known method, are endeavoring to secure an increase in the hourly wages of employed workers, which, if successful, would inevitably retard the re-employment of furloughed workers which has been going forward rapidly as earnings have increased. The volume of railway purchases—and hence

employment by those concerns which supply the railways with cars and locomotives, steel, machinery, ties and the thousands of other commodities which the railways buy—is directly dependent upon the net railway operating income the railways earn. The curtailment in employment in plants which supply railway materials was much greater in proportion than it was on the railways themselves. Only by a restoration of normal railway earnings can normal railway buying and hence normal employment in manufacturing plants which supply the railways' needs be restored.

Why Advances for the Highest Paid?

The demand of the "aristocrats of railway labor," the train and engine service organizations, for a wage increase of 20 per cent at this time is a challenge indeed. Except in yard service, the hours put in by most of these employees to earn full time wages have been steadily decreasing, while their rate of payment remains, and it has throughout most of the depression, at the 1929 peak. Their monthly earnings are well above the minimum needed to maintain comfortable living conditions for their families. Should their wage increase demand, or even any substantial part of it, be granted, the result would inevitably be the retardation of re-employment of furloughed workers—on the railways and in railway manufacturing—who have been jobless for years. *Pending an increase in living costs to a point well above the 1929 level, is there any economic or social reason why the rate of wages of employees who have had regular work throughout the depression should be increased when such increases inevitably will retard the rehiring of workers who have been out of jobs for years?* And, in particular why begin wage increases with the most favored class of employees, who stand at the very apex of earnings and favorable working conditions?

Then, too, there is the question of competition from other methods of transportation—trucks in particular. It is evident that any such increases in wages and reductions in hours as the railway labor organizations are demanding would inevitably lead to the loss of traffic (and jobs) to railway competitors.

What the Railways Are Facing

As Dean Lloyd K. Garrison, of the University of Wisconsin Law School, and former head of the National Board of Labor Relations, said at a recent meeting of the Academy of Political Science in New York:

"The railroads are facing an unprecedented competition. To survive and prosper employees and management must co-operate as never before. For the sake of their own future, which depends on the prosperity of the industry, there is much that the employees should give up in the way of burdensome rules, uneconomic make-work legislative programs, and opposition to needed co-ordination of facilities and terminals. But these things are not likely to be given up for the asking. They are symptoms of a deeper hunger—the hunger for security. . . .

"There is fear of old age, fear of unemployment—fears based upon the solid realities of what has happened in recent times. These fears explain in part the obstinate clinging to outworn rules, the drive for make-work programs. I do not condone these policies. They are bad for the industry, and in the long run bad for the men. But I doubt if you will end them by saying they are bad, or by talking about the long-run interests of men, when round the corner are immediate perils. I do not know the answer, but I cannot help but feel that there is enough statesmanship on both sides to yield what should be yielded and to grant what should be granted."

The settlement of the pension question *is* important to regularly employed railroaders and so, as Dean Garrison says, is the matter of greater security of employment (upon which, incidentally, Vice-Chairman Paul Shoup of the Southern Pacific has recently made some very pertinent suggestions, a part of which were quoted in the *Railway Age* of December 19). These are questions which are probably of greater immediate concern to most regularly employed railroaders than is an increase in hourly rates of pay. If first things are to come first, those are the questions to which managements and organizations should restrict their discussions as far as present employees are concerned, allowing improved earnings in the meantime to continue the good work they are doing in restoring employment to normal.

Spoiled Child Department

"Pilots and airline companies are agreed that we need more beams, more control stations, more aids generally to safe flying. Let the government do that job. For the rest, depend upon it, we'll do everything that is humanly possible to make flying safe."

Capt. Edw. V. Rickenbacker, general manager, Eastern Air Lines, as quoted in the N. Y. Daily News

Back several years before the war there was an epidemic of railroad accidents to some extent comparable to those recently suffered by the air lines. Did any one at that time suggest that the remedy lay in the government installing a lot of new signals on the railways? Or in buying them steel cars to replace wooden ones? Or, for that matter, does anyone think of the government as Santa Claus in connection with improvements desired in railway service today?

Industrialists pretty generally seem to think that the government is destroying the spirit of self-reliance of the farmer and the workingman by giving them the idea that society owes them a good living whether they perform any useful service or not. But what kind of example of self-reliance does an industry set when, faced with a public demand for safer service, it tries to shoulder the cost onto the government? The spoiled children of our modern age, who demand the more, the more they get, are not all leaning on shovels for the W.P.A.

Indexes to Volume 101

The indexes to the latest volume of the *Railway Age*, July to December, 1936, are now ready for distribution and copies may be had by those subscribers desiring them. Requests should be addressed to the Circulation Department, *Railway Age*, 30 Church Street, New York. Subscribers who have in previous years made application for the index need not apply again; they will continue to receive it as long as they continue to subscribe.

Acme Photo

Tracks and Concourse Level of Cincinnati Union Station Still Above Flood Level, but Entirely Surrounded by Water

Ohio River's Worst Flood Cuts Railroads in Two

Paralyzing of river crossings from Steubenville, Ohio, to Cairo, Ill., disrupts transportation

THE most devastating flood in its history swept down the Ohio river and its tributaries from January 15 to 30, inundating and damaging railroad property and interrupting service at all major points from Pittsburgh, Pa., to Cairo, Ill. Major disasters have occurred at Portsmouth, Ohio, Cincinnati, Louisville, Ky., Evansville, Ind., and Paducah, Ky.; record high water overflowed large areas of territory in six states; with one exception river crossings beyond Steubenville to the confluence with the Mississippi at Cairo have been impassable; practically all service has been affected, many trains being cancelled or rerouted.

Acme Photo

System Shops and Engine Terminal of the Illinois Central, Paducah, Ky.

Not only has the flood interrupted service, but it has caused extensive damage to railroad property the magnitude of which cannot be estimated until the water recedes. In addition to this damage, many industries have been shut down, with a resulting loss in traffic to the railroads. While the railroads are being taxed to the utmost to protect property and maintain service, they are also being called upon to render aid to stricken areas by transporting refugees, and delivering supplies and volunteers to flooded cities, in many cases donating their services without charge.

Pittsburgh Feared Repetition of Last Year's Flood

At Pittsburgh rising water reached a stage of 35 ft. on January 26, and, with rain and melting snow swelling the Monongahela, Alleghany and Ohio rivers, threatened to reach the mark of 46 ft. recorded in March last year. The Baltimore & Ohio, which has been using the Pittsburgh & Lake Erie for part of its traffic through Pittsburgh, was forced to route all of its trains over its own line on January 22, when water covered the P. & L. E. tracks. The Pennsylvania was able to operate into Pittsburgh, and on January 25 anticipated no difficulty unless the water rose to a stage of 38 ft.

Wheeling, W. Va., on January 25, was isolated except for a line of one railroad, the Baltimore & Ohio operat-

ing a shuttle train between its station and Elm Grove, Pa., on the east, and bus service between the station and Bellaire, Ohio, on the west. The line from Wheeling to Columbus was cut at Zanesville, Ohio, by extremely high water in the Muskingum river, and also at Bellaire by high water in the Ohio river. The line along the east side of the Ohio river from Wheeling to Kenova, W. Va., has been entirely out of service because of inundated tracks at many places. From Parkersburg, W. Va., to Cincinnati the line was cut at Chillicothe, Ohio, while no service is being rendered between Parkersburg and Clarksburg.

At Huntington, W. Va., Chesapeake & Ohio terminals were inundated when the water reached a height of 62.4 ft. on January 24, or 12.5 ft. above the flood stage. Because of high water in the Ohio, the line along the south bank from Ashland, Ky., to Cincinnati, has been submerged at various points, also cutting off service to Columbus, while the line from Ashland to Louisville has been operated only as far as Lexington.

At Portsmouth, Ohio, the flood wall became ineffective on January 22 when the Ohio river stood at 62.7 ft., or more than 6 in. above the wall. To relieve pressure on it, sewer valves were opened to permit water to enter the city, flooding the Norfolk & Western classification yard and engine terminal and cutting off service between Kenova and Columbus, Ohio.

Acme Photo

Flooded Railway Terminals on the Ohio River Water Front at Cincinnati

Greatest Damage at Cincinnati

Probably the greatest damage to railroad property has been experienced at Cincinnati, where the water reached a height of 80 ft. on January 25, surpassing the record level of 1884 by 9 ft. Fires caused by failing gasoline tanks destroyed railroad and industrial property and increased the intensity of the disaster.

Owing to the high level of the bridge approaches from the Ohio River crossings and the high level of the new Union station, trains have been able to enter the station from the Kentucky side but only the Southern has been able to continue service, because the Chesapeake & Ohio and the Louisville & Nashville had their lines cut on the Kentucky side. On the Ohio side only the Chesapeake & Ohio of Indiana has been operating into the city owing to the high level of the water in the Ohio river west of the city, which has cut off the Baltimore & Ohio line from St. Louis and the Big Four line to Chicago, and also to the level of the back water in the Mill Creek Valley north of the Union Station, which has effectively isolated the station from the lines of the Baltimore & Ohio, the Big Four and the Pennsylvania to the east and north. As the result of this the roads entering the city from the north have established temporary terminals in the suburbs of Cincinnati and for a time, at least, maintained bus connections with trains of the Southern at the Union Station.

Because of these conditions at Cincinnati the Big Four's Chicago-Florida trains have been operated via Indianapolis, Ind., and Losantville, and thence over the Chesapeake & Ohio to Cincinnati where they have been turned over to the Southern. Chicago-Cincinnati trains have been operated via Indianapolis, Ind., Bellefontaine, Ohio, and Springfield, to Lockland, from which point passengers have been carried by bus the 12 miles into Cincinnati.

Trains from the north on the B. & O. into Cincinnati, stop at Norwood, whence passengers have been transported by bus. St. Louis-New York trains, normally operated by the B. & O. through Cincinnati are being routed over the Alton to Chicago, and thence over the B.

Acme Photo

Elevated Line of Kentucky & Indiana Terminal near Walnut and Thirty-First Streets in Louisville, Ky.—Water Almost to Top of the Street Underpasses

& O. to New York and Washington. Chicago-Florida trains operated over the Pennsylvania and Southern, via Cincinnati, are being rerouted over the Pennsylvania via Washington.

Because of water on the tracks at Worthville, Ky., and Eagle, on the Cincinnati-Louisville line, and at Demossville, Ky., and Falmouth, on the Cincinnati-Paris line of the Louisville & Nashville, all service to Cincinnati was abandoned. Trains to Knoxville and Atlanta were detoured over the Southern as far as Junction City, Ky. On the Erie, water at Maitland, Ohio, prevented operation over the Marion-Dayton line.

Fire destroyed the Baltimore & Ohio roundhouse and threatened its machine and repair shop in Cincinnati on January 22. In fighting the fire, firemen were hampered by flood waters and limited water supply. Six railroad

World Wide Photo
Loading Coast Guard Boats for Rescue Work in Ohio River Valley

cars filled with coal added to the work of the fire fighters when the coal took fire from the heat.

Flood heights in the Muskingum valley were reduced from two to three feet by the incompleted dams of the Muskingum conservancy district, according to estimates. Although none of the dams is in position to have the gates lowered all but two of the 14 dams automatically held flood waters temporarily, thus lowering the crests and preventing heavier property damages.

Louisville Also Scene of Disaster

Despite three weeks of rainfall, greater than that preceding the 1913 flood, Dayton, Ohio, Middletown and Hamilton were freed from flood dangers from the Miami river. Dams located on Stillwater, Miami and Mad rivers above Dayton were holding back these swollen streams and the only flooding was over valley lands provided for this purpose. As a result, the railroads have experienced little flood trouble in the Miami valley except that resulting from back water from the Ohio river.

At Louisville on January 25, twenty-five square miles of the forty square miles comprising the city were under water, with the stage of the river measuring 56.3 ft. as compared with the stage of 47.7 ft. recorded in 1884. With railroad stations and approaches to the river bridges inundated the railroads entering the city from the north were forced to establish temporary terminals on the Indiana side.

The Louisville & Nashville was shut off from Louisville on January 22, when local water troubles at West Point, Ky., and Elizabethtown rendered its lines to the south and west impassable. With the tracks and streets at its offices and the station at Tenth street and Broadway under water, efforts to maintain regular service were abandoned, and all facilities were placed at the disposal of the Red Cross. New Orleans trains were detoured from Louisville over the Southern to Junction City and thence back to the main line at Lebanon Junction.

The Baltimore & Ohio was forced to abandon service into Louisville when water covered the approaches near New Albany, Ind. Some difficulty was also experienced at Watson. All trains on the Louisville division of the Illinois Central between Louisville, Ky., and Fulton were annulled on January 23. Water in the Illinois Central station at Louisville measured 13 ft. on January 25. The Chesapeake & Ohio abandoned service into Louisville when damage from local runoff was experienced at Lexington.

Evansville Crossing Blocked

The river crossing at Evansville, Ind., was rendered impassable on January 23, when the river passed the 48.3 ft. stage of 1913, and inundated one-third of the city. As a result, through trains over the C. & E. I. and the Cleveland, Cincinnati, Chicago & St. Louis had to be rerouted. Florida trains operated over the C. & E. I. to Evansville and thence over the Louisville & Nashville, were discontinued while C. & E. I. freight trains ordinarily moving through Evansville have been rerouted at Woodland Junction, Ill., to East St. Louis and Chaffee, where they have been turned over to the Frisco.

Illinois Central Cut in Two

Slides, washouts and high water on the Illinois Central at Wickliffe, Ky., and for some distance south of that point definitely interrupted service on the line from Chicago to New Orleans, while the alternate route via the Edgewood cutoff and the Ohio River bridge at Metropolis to a connection with the main line at Fulton, was rendered unserviceable by slides in cuts north of Metropolis and water over the tracks at Reevesville, Ill. Similarly, the line from Fulton to Louisville became impassable as a result of high water in the vicinity of Paducah, Ky., where rising water forced the 34,000 inhabitants to evacuate the city on January 25 and submerged the Illinois Central's system locomotive repair shop in 4 feet of water. All through passenger trains on the I. C. from Chicago to the south were annulled.

As this article is being written, the water in the Ohio river has not reached the tops of the levees at Cairo, Ill., and it is still uncertain whether the blowing of a levee fuse plug on the Missouri side of the Mississippi river opposite Cairo would result in sufficient relief to avoid the overtopping of the Cairo levees. The magnitude of the flood in the Mississippi river south of Cairo is now a matter of considerable concern and led to a conference of army, railway and other engineers at Memphis, Tenn., on January 25.

As a result of this conference the War Department on January 27 announced that it would order the evacuation

(*Continued on page 233*)

See Yourself as Your Passenger Sees You

A passenger asks many questions about improvements in passenger service at low cost

By Clarke A. Richards*

"IMPORTANT, too, are the extra courtesies that make the train trip more enjoyable—hospitality that typifies 'will to please' spirit."

Great! I was just reading those inspiring words in the ad of a large railroad—so engrossed that I did not notice the conductor until he yelled "Tickets!" and poked me in the shoulder. He did not say, "Tickets, please,"—just yelled, "Tickets!".

How "extra courtesies" flew out the window into the passing scenery. When the conductor had secured his tickets and had passed on in his business-like way, those of us in the club car began a discussion of the great improvements in railroad service, the thousands, the tens of thousands, the hundreds of thousands and the millions of dollars the railroads had recently spent for our convenience, comfort and safety in air-conditioning equipment, in stream-lining trains, in rubber shock absorbing, in speeding up schedules—only to counter-act and lose that good will just as soon as it was built up by tolerating discourtesy and other conditions that can be eliminated with practically no added investment.

Why Are Railroad Conductors So Discourteous?

The question came up—"How often have you heard a railroad conductor courteously ask for your ticket? How often does he say, 'Please'?"

Well, the twelve men discussing the matter in the club car were divided. But most of them agreed that about fifty per cent of the time the demand for the ticket was entirely devoid of courtesy or consideration.

But when the second question was asked each of those present, the answer was unanimous indeed—*"NO!!"* This question was—*"Have you ever heard a railroad conductor say 'Thank You' when you handed him your ticket?"*.

Why is it that railroad conductors grab your ticket, give you an unpleasant look, and *never, never,* say, "Thank you?"

Have you, Mr. Railroad Executive, ever heard one of *your* own conductors say, "Thank you?" In all my years and years of travel, during which I have almost lived on trains, I have yet to hear the first conductor thank a passenger for his patronage.

Almost invariably, Pullman conductors thank you and show a great deal more friendliness than railroad conductors. Are railroad conductors so rushed they can not take time to say, "Thank you," or are they given instructions by their superiors not to do so?

These are samples of the questions we asked each other. The vote to put those questions up to the grouchy conductor was vetoed, but it was agreed that something should be done, that the matter should be put up to higher officials, that many other sore spots should be called to their attention.

So, I am asking some of these questions of you railroad executives as we are rushing toward Chicago in one of the nation's fine trains—hoping to have it all in writing so it can be read and discussed, changed, revised and enlarged by this group before we reach Chicago tonight—so the entire series of questions can be presented to you in *Railway Age* and that you will answer us.

Just What Are the Duties of a Brakeman?

Last summer a courteous Red Cap helped a man with no small amount of luggage onto a train. The Red Cap said, "I'll put these bags near the door because you have to change trains in about eight minutes at the next station on the edge of town." That was apparently news to the passenger—nobody had cautioned him before. Why?

The passenger began to get nervous. How was he to change trains with all that number of small pieces of baggage? But he solved his problem by requesting help of the brakeman just as the train slowed down for the station—as the brakeman came through the car calling the station. The brakeman paid him no heed.

The passenger struggled off the day coach with two or three pieces. He had to drop them on the station platform and rush back into the car for a second load, and as he came down the steps the second time, the brakeman took time off from his discussion of the ball game with a fellow employee to say—"Hurry up there! We can't wait here all day. Any more of that stuff in there?"

To which the man quietly replied, "If you had given me a little help when I asked you, I'd not have delayed your train."

The brakeman replied, "What in hell do you think I am, a porter?"

Now, the question is—"Just what are the duties of a brakeman?" I have frequently thought that maybe many trains could be operated more successfully without them and their discourtesy to passengers. But do their duties include the advertised "extra courtesy" of helping a man out a little when it is evident that he is up against it? I have seen brakemen help women with their hand baggage. I have seen them lift children down from the train. I have seen them be fine, courteous gentlemen. On many railroads, they *always* are gentlemen; on other railroads, they *never* are gentlemen.

A Quick Shift in Courtesy

And on still another road, there is a special porter on each and every day coach of the crack train. He not only keeps the cars spotlessly clean, but he attaches special tags to every separate piece of your luggage, iden-

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tifying by color and printing its destination. The porter takes your baggage from you on the station platform, places the entire lot of it on the train for you, and then delivers all of it to you on the station platform of your destination,—in this case a junction point.

When you step onto the connecting branch train, you encounter the same old discourtesy in the person of the brakeman and conductor, the same lack of help with your baggage, the same old take it or leave it attitude—such a change from the greatest and most pleasing of service and accommodation to the greatest of discourtesy—all in less than a minute, the same railroad, the same station. *Why?*

Why should one crew be schooled in service and courtesy and another crew of the same railroad allowed to destroy all the resulting good will in less than a minute later? Again, why is it?

We are your guests. We are shut in your steel cars. We are virtually your prisoners. Certainly your passenger cars are our homes while we are aboard your trains. Why do some railroads subject us to discourtesies to which we'd not think of subjecting you if you were in our homes? Why do you ask us to tolerate conditions to which we are entirely unaccustomed in our own homes?

Let's consider some of them.

Why Antiquated Day Coaches on Leading Railroads?

Most of the antiquated coaches you see are on some plug or branch line. One needs to tolerate them, their smell, their dirt, their smoke, for a matter of an hour or two at the most. But why those terrible day coaches on so many of the through trains going east of Chicago on what are considered the world's leading railroads? You never encounter old out-of-date wrecks of day coaches to any extent on lines in other directions from Chicago, and also not on all roads going east.

Why should the average of us patrons who are accustomed to fairly comfortable chairs in our own homes be asked to sit for hours on an uncomfortable double bench with springs so stiff as to be useless, upholstering so dirty and insanitary that it actually has an unbearable odor?

A sign on the door reads, "Keep door closed. This car is air-conditioned." But the car has been brought up from the yards on an early fall day that has unexpectedly gone up to ninety degrees in the shade. The train shed is hot and sultry and smoky. The doors are wide open.

The passengers gradually fill the car. They shed their top coats. Then they shed their coats. And then they shed their vests. Then they just sit there and suffer.

Does this happen on rare occasions? It happens about every time I take one of these day coaches east of Chicago on a warm fall or spring day. Why doesn't the brakeman, the conductor, or some railroad employee turn on the cooling system until after the train starts? Why does the conductor always seem so surprised to find the car is stifling hot? It always is hot every time he enters. You would not think of offering such inconsiderate treatment to the guests in your own home, would you?

Why Such Poor Illumination in Day Coaches?

Why are there some day coaches—on through crack trains—so illy lighted? When these cars are standing in the station, the light dims down to the point where a word can not be read. Even when the train is in motion, the lights are so far away, on the ceiling of the car, that the volume of illumination is entirely inadequate. Haven't any tests been made to ascertain whether the volume of light is sufficient? Such tests are made in hotel rooms and in practically every other place where the guests frequently read. Why do the railroads lag behind? Why are the batteries always inadequate to maintain a satisfactory volume of light when the train slows or stops?

But great have been the improvements in lighting and illumination of the newer cars. The indirect lighting of homes and offices is efficient, satisfactory and delightful. It is a pleasure to see how the railroads have taken advantage of this forward step. But in one of the very latest and most modern streamlined trains the lighting of the day coaches is such that a person sitting next to the aisle can not read unless he crowds over against the passenger sitting next to the window. It is necessary to hold the paper or magazine almost over in front of the fellow passenger before the light falls on it in sufficient volume so that the type can be read with ease. The window seats are illuminated much more brightly than the aisle seats. A trip down the aisle will show the difficulty the aisle seat passengers experience in reading in comfort without undue eye strain.

While old out-of-date coaches, without the best of illumination, might be tolerated, there can be no excuse offered for this defect in these latest of streamlined trains. I am no expert on lighting, not an engineer, but I do know when my own normal eyes are subjected to undue strain through faulty lighting.

What Price Toilet Facilities?

And those toilets on some through day coaches!

The less said about them, the better. Mr. Railroad Executive, have *you* ever ridden a day coach on a long trip? Have you ever used the facilities of the men's toilet? If you have, how can you tolerate such filth?

The outdoor privy passed a generation ago. Yet old fashioned privies are tolerated on through trains, in no small numbers, not confined to eastern roads—dirty, rotten, stinking, insanitary filth. No water flush, just a dirty tube, even the running gear of the car covered with waste.

To top it off, after one has paid his money to become a guest of the largest railroad, is shut in, yes, locked in, so that he can not possibly get out to secure other facilities, he is asked to *buy* his soap and towel—to stick a nickel in the slot. You never notice that lack of soap and towel until you already have your hands in the water—*cold* water—there is no hot water on these day coaches as I recall—and then you use your handkerchief, or toilet paper, to dry your hands enough to get into your pocket to get a nickel to put into the slot in order to get soap and towel—only to find you haven't a nickel in your pocket full of change.

Then is the time to lose the perfect control of your temper, to hit the ceiling, to take time off to cuss that railroad for being penny-wise and pound-foolish, for spending thousands of dollars to air condition that car on which the road will not spend money for adequate toilet facilities. You say—and you mean it—"I'll never ride another train on this blankety blank railroad when I can help it!".

Have a Drink on the Railroad?

By that time, you are plenty hot; your mouth is dry from cussing; you have been cooped up in that small toilet room that is hot as hades. You need a drink, only to find out you have to shell out a penny to buy a drinking cup. You reach into your pocket; you have no pennies in your change.

That is the last straw!

Away goes all the good will bought by thousands and

thousands of dollars the railroad has spent on air-conditioning day coaches, because of neglecting to provide even the decencies and simple necessities of life, something every guest, every place, has a right to expect in this day and age.

Is Nothing Free?

"Spacious washrooms with free soap and towels. Filtered drinking water with free cups whenever you want it." This is the proud claim of one eastern road. Other roads provide electrically cooled drinking fountains, in the west. But even on some of the western roads, where progress seems to be greatest, with the most modern toilet facilities, who is the man who put that paper towel cabinet on the door—just the right height to catch a man's head every time the train lurches? Who is that man? I have asked that question many a time when such a bump has cased a headache for hours. Move that cabinet to a position directly over the window, out of the way, much more convenient to the washbowl and where it is not going to crack some passenger hard enough to cause a damage suit that will cost the railroad more than all the free towels and soap of the next year.

It would seem that toilet rooms should require air conditioning. Yet in so many air-conditioned coaches and Pullmans, there is no air conditioning, no ventilation in the toilet room—in fact, in many of them, no heat either. One always smothers—always either roasts or freezes.

To go from one extreme to the other—here *is* a question—

Why the Open Door Policy?

Why is it that on a cold day, the brakeman always rushes to the door of the day coach and slams it wide open, locks it open, just as soon as the train begins to slow down for some station? They always do. Why?

Then the passengers sit there and freeze. It is plenty breezy while the train is still in motion. The train stops, no train shed, but wind and snow. A limited number of passengers file out. Then a few get on. And—the door remains wide open. Why? Nobody getting off—nobody getting on. The brakeman is kidding some of the natives on the station platform drawn to the train by curiosity, cold as it is. After freezing to the limit of endurance, one of the passengers gets up and slams the door shut. Only to have the brakeman come up on the platform and open it again. Then more freezing. Then the train starts. The door still open. The conductor comes in. He sees everybody freezing, but he leaves the door open. Finally the train gets to the far edge of town and the brakeman comes in and closes the door. Why all this open door?

I have seen various passengers close the door as many as six times while a train was standing at a station, only to have the door opened again by the brakeman. There must be some regulation, something carried over from the old, old days, certainly not necessary now. The passengers have been promised comfort. Many is the severe cold that has been contracted on trains because of this practice of leaving the door open on cold winter days while the train stands at a station. Mr. Railroad Executive, you had better change that practice. It is silly. It is costing you more money in lost business than you secure through your investments in comfort and convenience you advertise so highly.

Why is a day coach so frequently either burning hot or freezing cold? The conductor and brakeman will pass through the car and will see both men and women throwing their overcoats over themselves. That ought to be enough evidence that the car is no longer comfortably warm.

Do Passengers Prefer Heat or Cold?

Occasionally a trainman or porter will ask some passenger in regard to the car's comfort. This is rare indeed and the shock is about enough to kill a man with a weak heart.

On the other extreme, the car gets hot and stuffy. The passengers start shedding their coats and vests. That ought to be sufficient evidence that this car is getting uncomfortably warm. Anyway, there are thermometers. A glance at one tells whether the temperature is correct or not.

Air conditioning is overcoming these difficulties, but why not overcome them in cars which are in daily use but not air conditioned? Just a little closer attention on the part of the crew will secure the desired results.

But will air conditioning ever overcome the unpleasant smell of certain types of gas lights still employed on some day coaches on through trains? The passengers have a right to demand that old antiquated lighting systems be replaced with adequate electric lighting systems. We'd not tolerate such inefficient and out-of-date lighting systems in our own homes; why should we be asked or forced to tolerate such unsatisfactory systems in a railroad coach? Ever try to read by such light?

What Do Ventilators Do?

Of course modern air conditioning does away with the old style ventilators. But is there no way to eliminate the dirt, soot and cinders that rain down on passengers when a brakeman slams down the ventilator on the old-time day coaches? Can not these ventilators possibly be opened a little more gently so that any accumulated dirt or filth is not so violently disturbed to the extent of falling into the coach on the passengers?

Would it not pay the railroads to provide the older coaches, now in daily use, with more modern type of ventilators. The cost of such replacements surely would not be prohibitive in comparison with the good will the added comfort and cleanliness would produce.

Why the Insufficient Baggage Space in Coaches?

The baggage racks on the average day coach are far from adequate. They are so narrow that if an average sized gladstone bag is placed in one, there is danger it will topple off on the head of the passenger beneath. A sixty-pound piece of luggage falling that distance might kill or injure for life the person it hit.

The new modern coaches have adequate baggage space as a rule. That is one lesson the railroads have learned from bus design, because the newest coaches have identically the same design of baggage racks found in good large busses for years. However, some of the very latest trains have far from adequate baggage storage space and racks.

How much would it cost to provide older day coaches now in daily service with baggage racks of proper size and more efficient design? There is crying need for such an improvement. Compared with expenditures railroads are making on less required improvements, the cost would be low; the convenience would be appreciated by countless thousands of passengers.

If some railroads find it profitable to provide time tables in the day coaches as well as in the Pullmans, why do not more of the railroads furnish this convenience? Did you ever require the use of a time table and then

try to get one on a day coach? The conductor always seems to have trouble locating one for you. The only thing you can do is to appropriate one of the folders available in a Pullman car—not a pleasant task—not a good will builder for that railroad.

Please—May We Have More Electric Fans for Day Coaches?

How many of us would consider going through a long, hot summer in our homes without electric fans? Yet, in this day and age, I am forced to ride in countless numbers of day coaches provided with no electric fans. We passengers have a right to expect better service. Compared with the cost of other improvements designed for our comfort, the cost of providing electric fans for all day coaches is low indeed.

Why Not Ride First Class?

Well, go ahead and tell me that if I don't like day coaches, to ride in the parlor or club car. I am—right this minute. And why do I prefer a day coach to the club car?

First, it is cheaper. Second, there is supposedly no smoking in the day coach. I do not smoke. I do not want my clothes to smell of stale smoke. Smoking is permitted on the club car. I prefer the day coach to the club car for that reason. There are many men and a far greater number of women who prefer a car where no smoking is permitted.

Lately, however, conductors are permitting a passenger here and there in the day coach to light up and foul the air with cheap tobacco smoke. When a girl lights a cigarette on the day coach, doesn't the conductor have the nerve to tell her to move into the smoking room or car? Last week on a through train going east from Chicago, eight passengers were smoking in one day coach at the same time. If something is not done to abate this nuisance, every day coach will be a smoking car in a short time. Even now, train crews permit the passengers to start smoking in most day coaches as soon as the train nears the terminal and the passengers begin to get into their coats or wraps.

Non-smokers, women who have a distinct allergy to tobacco smoke, some of whom tobacco smoke makes most deathly sick, and many others will soon have to start using other means of transportation if railroads get more lax about permitting smoking in the day coaches.

Some coaches—even on the latest streamlined trains—are part smoker, part day coach. Occasionally the door of the partition is allowed to remain open or to stand partly ajar for long periods. This permits the smoke to permeate the entire coach section; it might as well all be smoker. Why aren't there door closers on these partition doors that will keep them *always* closed smoke tight?

Other cars provide a smoking compartment. The men's toilet door frequently opens directly into this smoking compartment. Lately these smoking compartments seem to be appropriated by women smokers. What man desires to use the toilet facilities with a strange woman sitting directly in front of the toilet door? Keep these women smokers out of the men's smoking room. Provide them with a smoking room of their own. Or better yet, provide a men's and women's smoking compartment entirely separate and apart from the toilet rooms.

In the parlor car of the train I am now riding, there is the same criticism of inadequate lighting facilities, the same stiff, extremely uncomfortable seats. But there are fewer parlor car passengers and consequently less good will lost because of lack of more comfort and convenience.

Why the Passes?

In that connection, possibly better lighting facilities could be provided by the railroads, seats with more comfortable springs instead of the old antequated affairs in the parlor car of this train *if* so many passengers were not carried free on passes. When I get into the day coach and there are only ten passengers, five of whom are traveling free on passes, it means that the other five of us are paying more than we would if we were not helping to pay the fare of those riding on the passes.

If all passes were abolished, more money could be paid train crews, a more courteous type secured and the eastern roads possibly might not have acquired such feeling against themselves as they did by fighting so long the reduction of rates. Let everybody buy their own tickets—pay their own fare. Do not ask me to buy my own ticket and then help pay for the ride of the man with a pass. He can not be carried for no cost. Somebody, some place, has to pay. Let him pay his own. Then spend that money on adequate toilet facilities, efficient lighting, and on crews who will watch the temperatures of the day coaches, help passengers on and off in a courteous manner.

How Are Prices in Diners Figured?

Why do prices in diners differ so greatly? Not because of the quality of the food. There are western roads where we secure the most satisfactory luncheon for fifty cents, with a full course dinner at sixty-five cents. Other western roads serve breakfast, luncheon and dinner at even lower prices. It has been reported that at least some of those diners are breaking even and possibly paying a profit. We passengers are given to understand that hundreds of meals are served per day in one diner at those prices on the fast modern trains between Chicago and Minneapolis.

After leaving one of these trains, you can make connections at Chicago, at the same station, with a train traveling east, where meals, in my opinion, of vastly inferior quality are priced at more than double. Yet, the same brands and quality of milk, bread and other foods are served. Why this difference in price of the meals? The supplies are bought in the same city at undoubtedly the same prices. The two roads run out of the same city, in fact out of the same station in that city. There is no difference in service, the equipment or in the dining car itself. In fact, in my estimation every thing is in favor of the road serving the meals at the lower price, employees of which tell me they are serving at a profit while the other road has written they are losing tremendously on their service. Possibly it is because the price of their meals is way too high.

Are Bumpy Starts Necessary?

Two railroads leave a city from the same station. One of them practically knocks your teeth out every time the train starts or stops. The other starts and stops so gently you hardly realize there is any change in motion. Both trains may carry the same number of cars, the same weight, apparently the same size and design of locomotive.

Do some railroads instruct their engineers to strive for a gentle start and stop and other railroads give that important matter less consideration?

Those bumpy starts can be eliminated. I am no rail-

road man, but I do know that I have enjoyed many a ride on several different railroads where you practically never experience such rough starts and stops. There are other railroads where sometimes you encounter smooth starts and stops, and at other times the going is not so smooth. And there are still other railroads, among the leading roads of the country, where you *always* had better hang on and pray at every start and stop. Why?

Are Unsatisfactory Stations Profitable?

So much for the trains—but how about your stations? Not the huge piles of stone, the terminals in large cities, the union stations. But the average stations of the smaller town.

Have you ever got off a train at a lonely junction point to make connections with another road? It is 9:23 at night. Your train is due at 11:35 P. M. The town is possibly a quarter or half mile distant. The whole town is in bed. There is no movie. It is cold. You have a two-hour wait. The fire in the stove begins to go down. You look for somebody to punch it up. There is no one in the ticket office. There is no coal in sight. You freeze. You cuss the railroad. You promise yourself you'll not ship any more freight over that so and so railroad.

Then you decide to read. You try your luck under a smelly, old oil lamp—the kind our mothers told us about, but which were supplanted by electric lights before we were born. No luck. It is not worth ruining your eyes. The acrid smell and fumes of the stale tobacco juice and cuds on and around the stove burn your eyes too much for reading. Anyway, you have to walk to keep warm. The floor has not been scrubbed in two years—not swept all week. That is apparent.

You decide to stretch out for a little rest. Ever try to rest on one of those railroad waiting room benches, with the iron arms about every thirty inches? They are most uncomfortable. They are not tolerable.

So you walk some more to keep warm. Then you go over and read the bulletin board, the old stained advertisements of last summer excursions that have not been removed for months.

And heaven help the man who seeks toilet facilities. He stumbles around in the dark, in the snow, until finally he locates an outdoor privy—only to discover it is locked with a special lock adequate to protect a bank vault. Possibly it is just as well.

Then you cuss the railroad some more.

Why do railroads allow ill-will to be built that way—ill-will that tears down all the good will secured by modernization in which railroads have invested millions?

Can Be Easily Remedied

First. The heating problem can be solved by throwing out the old, inefficient, pot bellied coal hogging stove. Replace it with a modern, efficient heater that is so nearly automatic in operation that the passenger is assured comfort even in the extended absence of all railroad employees. Such stoves also reduce insurance rates.

Second. Efficient lighting systems can be secured whose operating costs are so much lower than the inefficient old-fashioned wick oil lamps that in one year's time the new equipment is entirely paid for in savings on operating costs. These three hundred candle-power lights are entirely approved by the Board of Underwriters, will reduce insurance costs and will enable passengers to enjoy adequate and pleasing illumination.

Third. Employees take pride in keeping a modern place clean and neat.

Fourth. The cost of comfortable chairs at least at junction points will soon be paid in additional good-will.

Fifth. Indoor chemical toilet facilities can be provided at low cost in these modern times, sanitary toilet facilities that do not require water pressure. This type is used in rural schools the country over.

There is no way the railroads can dodge the indictment of all antequated depot facilities. The cost of them in lost good will is far greater than the cost of replacement with modern equipment and facilities.

Why Such Inefficient Passenger Information in Large Cities?

Why confine criticism to the small stations? They can not be expected to render the service one has a right to expect in the larger terminals.

One day a year ago last summer, a passenger boarded a through train bound for Chicago. A wire was received enroute. It became necessary for the passenger to reach a town in another direction from Chicago without delay. The conductor was consulted in regard to connections at Chicago. He could give no information. Possibly the passengers have no right to demand such service, but if that conductor had been supplied with time table showing connections at Chicago, he would have been in position to have made a real friend for his railroad.

It does seem he could have picked up some time tables at some station stop, in such an evident emergency, especially for one he knew to be such a good patron of his railroad. He did render one valuable service; he was able to give the names of the only two railroads that reached the destination.

When the passenger reached Chicago, he rushed to the information window where he discovered they would give information in regard to the lines entering that station only, refused to look up schedules of the other roads in their large guide, refused permission for the passenger himself to look in the large guide. Five or ten precious minutes were so lost.

The passenger then rushed to the public phone booth and called one of the railroads. The phone rang and rang and rang and rang—but no answer. The other road was then called. The receiver was taken off the hook by the information department and the passenger waited for minutes while he sweat blood. Finally there was an answer. The passenger then secured the information that the last train for the day had left just five minutes previously.

Enough time had been wasted through the inefficiency and discourtesy of the information departments of three large terminals to cause this passenger to miss his connections and considerable loss of money as a result. To make matters worse, when the information clerk had told the passenger the bad news, the receiver was slammed in his ears.

Try It on Your Own Road

Mr. Railroad Executive, have you ever called your own road for passenger information over the phone? Of course, it is not necessary because you are familiar with your schedules. But just for fun and experience, take your phone and call for passenger information on your own road.

1. Keep your watch in your hand.
2. See how long it takes you to get an answer.
3. When the answer is secured, notice the gruff, rough impatient voice.
4. Notice the hurry, the urge for you to quit asking dumb questions.

5. Notice the bang of the receiver at the termination of the call.

Now, call one of your competitors—not another railroad, but a bus line. Notice the prompt, efficient service you get from some interested, pleasant-voiced lady who appears interested and anxious indeed to be of service. Then call an airway outfit.

If you sit down and think it over, you start figuring whether something had not better be done about the slow, unsatisfactory service we get from railroad passenger information over the telephone.

Do not clean house. Do not blame the information clerks. Any inexperienced man can see at a glance that there is only half enough personnel in about every railroad information department. These men try to give information at the window, and they try to give it over the phone all at the same time. Give them more help. Tell them not to be so gruff, not to slam the telephone receivers. They are rushed to give the next man service. To the potential passenger patron, that bang of the receiver may seem discourteous.

No, I am not trying to tell you how to run your railroad information department. But I am asking you for better, more considerate, complete and courteous service.

Have You Ever Tried to Buy a Ticket in a Rush?

The railroads are saving money by cutting down the number of ticket sellers. And the service is going down at the same time. Have you ever tried to buy a ticket and Pullman accommodations in a hurry at some large terminal? Lines are formed at all the windows. The ticket sellers all have phones at their ears. There seems to be no activity, everybody just waiting. Finally a number is repeated by the ticket seller, he hangs up the phone and one transaction is closed and the line finally moves up one man. After this process is repeated several times, you reach the window, get your ticket, just in time to miss your train.

There is one terminal in Chicago where the ticket selling service is atrocious in my estimation. In one instance, I stood in line twenty-seven minutes to purchase a $4.30 ticket. Fortunately I had allowed thirty minutes to make the train. On another occasion I stood in line eighteen minutes, another time three of us stood in line fifteen minutes and I never count on less than twelve minutes standing in line to get a ticket.

Why doesn't that railroad provide more ticket sellers? Are they saving money? *Yes, but are they?*

I'll do everything I can to take a competitive line rather than go through the distasteful job of buying a ticket on that line. In the last year, that railroad has lost enough business from the men in one firm to pay the annual salaries of half a dozen additional ticket sellers.

Standing in Line as Trains Depart

One day last summer at this same terminal I stood in line so long that I was going to miss my train. I finally gave it up as a bad job, grabbed my bags, made a run for the train shed, only to be stopped by the gateman with a demand for my ticket. He sure found out why I did not have one. Some railroad official happened to be standing near and heard my explanation, my complaint that I had desired a round trip ticket that would have saved me three or four dollars. He ordered the train held while he took me back to the ticket window, secured a round trip ticket for me and put me on the train—a fine favor greatly appreciated by me. This official said that he and other officials of the road were well aware of this unsatisfactory condition at the ticket windows, but that the powers that be refused the expense of additional help.

It is my suggestion that some research work be done in every large terminal. Let a man hold a watch on each purchaser of tickets for a day or two. Ascertain exactly the number of minutes each passenger is forced to wait. Note the number who were forced to board the train without tickets (with the ensuing argument with the gateman because of no ticket), listen to the comments in regard to the poor service, and then decide from this evidence, secured in your own terminal, if additional ticket sellers are not a good investment and saving rather than expense.

Ever Try a Suggestion Box?

Hotel service has improved greatly in the last five years. In step with the railroads, we find air conditioning and many of the other improvements that railroads have adopted.

Yet the hotels do not adopt the attitude that their service is perfect—that it can not still be improved in ways that will please their guests. In practically every first-class hotel, you will find a request for your comments on the service, your suggestions for improvements, and for your complaints in regard to anything that proved unsatisfactory, such as discourtesy, slow, disinterested service, etc.

Would the railroads of America dare to request such confidential comments of their patrons? It is my thought that enough unfavorable comments would be secured regarding the discourtesy of your conductors and brakemen, complaints about inadequate lighting, etc., to eliminate forever the growing holier than thou, perfection itself, take it or leave it attitude the railroads are lately prone to adopt since their business has improved so greatly in recent months.

Is There Nothing Right About the Railroads?

Yes. The Red Caps are always courteous. Your conductors could take lessons from these Red Caps. Have you ever heard one of them fail to thank you? They usually are on hand at the taxi and at the arriving trains.

The Pullman conductors and porters and the colored porters on day coaches are a willing, friendly lot. They do much to overcome some of these other conditions—conditions that have caused all these questions.

And of course the mechanical improvements are well nigh perfect, the air conditioning, the faster schedules, the safety and other features too numerous to mention. We are for them and we are for you, but we have a hard time swallowing that statement, "The railroads love you."

* * *

We are nearing Chicago. These questions and comments have been read to the men in the club car. They have been cussed and discussed. The indictment is now far stronger than in the original draft.

None of us can understand why the railroads will spend so many millions improving their mechanical service and at the same time tolerate actions and attitude of their personnel, along with other conditions that can be so easily eliminated at practically no expense, to tear down good will as soon as it is built up.

We all agree we know nothing about running railroads, but we do know a lot about ordinary decency, sanitation, and courtesy. We agree we want all three and we demand them.

Otherwise, it is our privilege to patronize your competitors.

Track on the Grand View Line of the Kansas City Southern Near Kansas City, Mo.

How Strong Should Track Be?*

Some suggestions for the practical application of the results of research in the solution of current problems

By A. N. Reece

Chief Engineer, Kansas City Southern

THE question, "How strong should track be?" could be facetiously answered as "Strong enough to hold up trains." However, to all experienced railway engineers, it is at once apparent that this would not suffice. Track must, of course, be strong enough to support the trains, but it is most important that it be strong enough to afford economical maintenance. It is doubtful if any maintenance officer has a track structure that would not support the loads imposed without failure, if he had sufficient force and material to maintain it in first class condition. In general, if track is sufficiently strong to afford economical maintenance, it is much stronger than is necessary merely to hold up the locomotives and cars.

An analysis of the mechanical action of the track demonstrates that this position is sound. In addition, it is surprising to note to how great an extent economical considerations, rather than the requirements for strength alone, govern the design of individual units of the track structure.

How Track Functions

In the functioning of the track structure, the wheel loads of locomotives and cars bear upon the rail surface. The rail, acting as a girder, distributes each wheel load over a number of consecutive ties. Each tie receives its pressure from the rail, the pressure generally being decreased in intensity by the use of suitable tie plates. The ties, acting as beams, transmit the pressure to the ballast, which in turn distributes it more or less uniformly over the roadbed.

Through the extensive research work that has been carried on, notably by the American Railway Engineering Association, through its special committee on Stresses in Track, headed by Dr. A. N. Talbot, our knowledge of the stresses that are developed in rail, tie and ballast has been greatly broadened. Much work, however, remains to be done. It is still very difficult for an engineering officer to determine definitely just what bearing pressure of wheel on rail should not be exceeded; what maximum bending stress in rail may be attained without rail failure; what maximum intensity of pressure may be permitted on hardwood and softwood ties without crushing the fibers; or what intensity of pressure various types of ballast will resist in dry and in wet weather without flowing or slipping from under the tie. It is true that observation and experience provide a fairly reliable guide in making determinations in these matters, but this approach to our problems makes us too dependent on the past and excessively conservative in venturing into new developments which we have no means of judging.

The Significance of Track Depression

To illustrate further what is meant by track strong enough for economical maintenance, the track depression under wheel loads may be taken as an outstanding example. Basically, the strength of track as indicated by the track depression is of no concern. We would not care if the track depressed an inch under wheel loads, providing the depression was uniform throughout. The riding condition of the track would be just as good. Assuming a uniform surface of the track when it is at rest, it is obvious that the uniformity of the depression will determine the uniformity of riding condition. Two factors must then be considered in providing a good

* Abstract of a paper presented before the Maintenance of Way Club of Chicago on January 18.

riding track: (1) A track that is initially in good surface when unloaded or at rest; (2) a track structure that will depress uniformly under the wheel loads.

The advantage of stiff, strong track—stronger than necessary merely to support the wheel loads—is not always fully realized. The amount of variation in track depression under loads for stiff track may be as great proportionately as for a very flexible track, but not as much quantitatively, and it is in this that we are interested. To illustrate, suppose in either very stiff track or very elastic track, the maximum variation in depression is 50 per cent of the average. If the average depression of the very elastic track was 1 in., low spots of as much as ½ in. would be experienced at the weakest locations. If the average depression of the very stiff track was ¼ in., then the maximum out-of-surface condition at the weakest location would be only ⅛ in. This is obviously an important consideration.

When there is movement in the track structure there is wear. A track that depresses only ¼ in. will maintain its original condition of surface much better than a track that depresses 1 in. Thus, although either a stiff or an elastic track structure may be strong enough to support the loads, the elastic track structure will require far more maintenance labor to maintain its "at rest" surface condition satisfactorily smooth, and in addition, regardless of the labor expended on surfacing, the elastic track structure will never ride as smoothly as the stiffer track structure.

Requisites for a Stiff Track Structure

To insure a stiff track structure it must be supported on a well drained and compacted roadbed. In this country, it has been our usual practice to compact our roadbeds by traffic use. As the trains compact the roadbed over a period of years, additional ballast is added to restore the grade line. Tile and rock drains have been installed as financial conditions would permit. In European countries, closer attention is generally given to the compacting and drainage of roadbeds than in this country. In at least one European country, the roadbed is shaped, crowned, and rolled with a power roller before placing the track structure, and adequate tile and rock drains are used extensively.

A good grade of ballast of sufficient depth is required to support the ties. The experimental work of the American Railway Engineering Association has served fairly well to determine the economic aspects of the ballast. It has been found that the most intense unit pressures in the ballast occur directly under the ties and under the rails. The ballast must be of a quality that will withstand these unit pressures, even when wet, without resulting in flowing or slipping of the particles on each other and without appreciable wear. It has been found that a depth of ballast equal to the tie spacing is sufficient to distribute the pressure of the ballast uniformly over the roadbed. Additional ballast is of value in distributing the pressure more widely over the roadbed and in absorbing the impacts of service. Probably the most fruitful direction in which our energies may be expended for improvement in ballast is towards the development of a more stable type of ballast, that has the ability to resist flow and absorb impact better than the loose ballast foundation now provided.

Good Ties Important

For all practical purposes the wooden crosstie may be considered as in universal use in this country. The treated hardwood tie has a relatively long life, probably as much as 25 or 40 years, if adequately protected against wear. Splitting and checking of hardwood ties are now major problems, the solution lying largely in improved methods of seasoning, although depletion of the best grades of hardwood timber is an important factor. The size and length of ties have generally been determined by practical considerations. The strength of ties is largely a matter of depth. Experiments and practice have shown that a tie from six to seven inches thick has sufficient strength, with customary spacing, to resist breakage, except in extreme cases of center binding. In Europe, ties are generally 10 in. wide and spaced from 26 to 31 in. centers. In our country, ties seldom exceed 9 in. in width, but are usually spaced from 20 to 22 in. centers. The proper spacing of ties is an economic consideration involving the cost of the ties, the rail fastenings, the surfacing, and the ballast. In general, it is the practical view of American engineers that ties should be spaced as closely as the clearance required for tamping will permit.

Protecting Ties Against Wear

The protection of ties against wear is a problem that has not been adequately solved. Here, again, the mere satisfying of the requirements for strength does not meet the economic demands. We know with reasonable accuracy what unit pressures of the plate on the tie will protect it from crushing. We do not know enough about the cause of wear to permit an economic solution in technical design, although it is a problem that cannot well be determined from experience. The life of treated ties is so long, even if they are inadequately protected against wear, that it is extremely difficult to make satisfactory studies from service performance.

The best available information indicates that wear is the result of abrasive action of the plate on the tie due to the combination of bearing pressure and lateral movement of the plate on the tie. Increasing the size of plates reduces the intensity of bearing pressure, while a suitable fastening of the plate to the tie will serve to prevent the lateral movement between these units. The problem, again, is not that of strength to support the wheel loads, but of strength to protect the tie and preserve its life to effect a reduction in maintenance cost.

The Rail

Finally, we come to a consideration of the rail. Primarily, the rail must be of such composition and design that the bearing pressures resulting from wheel loads will not cause flow of metal at the surface, and that it will distribute the wheel loads over the ties without being broken by the resultant bending stresses. From available evidence it is quite apparent that we are already nearing the limits of the resistance of the rail to bearing pressures. The battering of rail ends, flow of the inner rail on curves, and rail corrugation all indicate that at those locations where rail pressures are above the average due to impact, transference of load, or vibration, the bearing pressures are increased sufficiently to produce rail flow. The extent to which these bearing pressures may be increased is more an economic problem in shortening the life of rail than a consideration of safety. The solution lies not in the size of rail, but in improvement in its quality and in limitation of the ratio of wheel load to diameter of wheel.

The strength of rail to support wheel loads safely and distribute them to the ties is not so much a problem of avoiding rail breakage as it is an economic consideration. It is similar to the questions of the stiffness of track and the bearing area of tie plates, requiring a strength not

only sufficient to avoid breaking stresses, but in addition strength and stiffness great enough to assure economical maintenance.

Advantages of Heavy Rail

Heavy rail contributes to the stiffness of track, but this is not its major function. Extensive tests, which have been reported in the A.R.E.A. publications, have shown that even in track which affords a very stiff support for the rail, a surprising variation occurs in the stiffness of the support at individual ties. In addition, there is more or less play between rail, tie, and roadbed at a large percentage of the ties. This play and variability of support are very detrimental to the riding quality of the track. The first thought is that this play is due to defective workmanship in surfacing and maintenance. The experienced trackman knows, however, that it is practically impossible to eliminate this play and variability of support. Track which has been surfaced and tamped most carefully will show this play after a passage of only a few trains. The railway maintenance officer knows, also, that even if it were possible to correct play and variability by sufficient maintenance attention the cost would be prohibitive.

Here we have, then, one of the major advantages of strong rail—rail stronger than is required merely to support wheel loads without breakage. A very strong rail, through its girder stiffness, serves effectively to bridge over these inequalities due to play and variable tie support and provides, in spite of them, a smooth riding track surface which can be maintained economically. With the demands for increasing speed, this advantage of heavy rail is becoming more and more important.

Looking at this question of "How strong should track be?" in perspective and relative to the demands of our time, we see that we have two conditions to face in the practice of most railways. The first is to permit our transportation departments to utilize the full strength of our lightest track structure so that public interest and the demand for expedited transportation will be served most effectively. The second is to recommend replacements or renewals, as they become necessary, with a track structure of sufficient strength to afford economical maintenance under faster and heavier trains and permit even further increases in speed and wheel loadings as they become necessary.

Problems Not Easily Solved

A large number of experimental measurements of rail and track stresses are available for determining the capacity of the track structure. However, these have not been condensed into a formula whereby railway engineering officers, with the limited time at their disposal, can satisfactorily analyze the effects of various locomotives on track in order to restrict maximum speeds to safe limits. Nor can they make recommendations for the design of new locomotives in an entirely satisfactory manner. Considerations at best can only be made relative to past experience, using formulae which have been developed by the A.R.E.A. to determine the relation. A uniform practice is needed to determine rail bending stresses and bearing pressures and establish maximum permissible limits therefor. This would permit a ready determination of the maximum permissible operating speed of any particular engine over an existing track structure, would facilitate the proper design of new locomotives, and would be of much aid in selecting the design of the track structure for future needs.

It is the duty of railway engineers to protect the existing property against damage from overloading beyond its strength; to permit as large wheel loadings as possible on the older track structures which may soon be scheduled for replacement; and to recommend a track structure for renewals which will have sufficient strength to accommodate the wheel loads and speeds of the future with economical maintenance.

We have given considerable study to the strength of track required for economical maintenance. This has included the experimental work done by the American Railway Engineering Association, the Westinghouse Electric & Manufacturing Company and the Pennsylvania railroad. It is our belief that the weight of rail should be determined by the axle load, speed of trains, and density of traffic. For axle loads of 70,000 lb. on properly designed locomotives, and speeds of 60 miles an hour, 100-lb rail, if on a good tie and ballast support, is sufficiently strong to support the wheel loads. However, it is our belief that for even a moderate traffic density rail of approximately 130-lb. weight, or heavier, offers sufficient economic advantages in added life of rail and ties and a reduction in the cost of track and equipment maintenance to justify the added investment for the heavier rail section.

In addition, the trend is unmistakably towards increased speeds and increased wheel loads. There is no sound reason to think that this trend will not continue. Therefore, if we do not want the life of the rail which we now buy to be shortened by obsolescence and inadequacy of strength for increased wheel loads and speed, it is essential that this be borne in mind in making present rail purchases. In my opinion, this furnishes another strong argument in favor of heavy rail. This is important when consideration is given to certain tests which, according to a paper presented before the Western Railway Club by Robert Faries, assistant chief engineer maintenance, Pennsylvania, shows that as much as 90 per cent of the entire axle load may be borne at least momentarily by one wheel.

The sub-structure of the track should consist of 7-in. by 9-in. by 8-ft. or 8½-ft. treated hardwood, or dense softwood, ties, spaced not more than 22 in. center to center; double-shoulder tie plates having a size of 7¾ in. by 12 in., or larger; at least a 12-in. depth (under the ties) of a good grade of crushed rock ballast of firm texture, or its equal; and a well drained and compacted roadbed. For very heavy traffic density and a preponderance of heavy wheel loads, consideration may well be given to even heavier rail, rigid type fastenings with large tie plates, and a good ballast of crushed rock, or its equal, of at least 24-in. depth, should be provided.

Consider the Track As a Whole

We must look upon our railway as a transportation plant. In continuing further to improve each detail of our track structure, we are in danger of losing our perspective of the track structure in its entirety. As we look back, we see our T-rail and track structure as first developed by Robert L. Stevens, president and chief engineer of the Camden & Amboy, near the middle of the nineteenth century. The rail was designed with the head to receive the wheel load, the base to distribute the pressure over the ties, the I-beam section for girder strength, and the crossties and ballast for distributing the load over the roadbed.

Little change has been made in these fundamental principles in 100 years. But neither has any fundamental change been made in the design of automobiles or airplanes by two of our most progressive industries. Improvements in the railway track structure have been

made principally in the quality of steel, in the addition of tie plates, rail anchors, and other rail fastenings, in the treatment of ties, etc. As we have continued in the past to perfect each unit of this structure, and add additional units to accomplish various aims, so in the future we should always have in mind the possible improvements in track structure which the development of new materials and an increase in the production of old materials may make possible or economical.

The maintenance of way department, in fulfilling its function in the railway industry, must plan for a continuing reduction in the man-hours required for the operation of the plant, as it is only in this way that our national progress may be continued. It is a difficult problem, in view of the demands for increasing speed, and of labor regulations, restrictions and requirements. Increased speed requires heavier locomotives to handle even the present train loads. A reduction in train load would require an increase in transportation cost which is insurmountable. We can only hope to meet our demands of the future by exercising our abilities to the fullest extent to provide a track structure capable of economical maintenance under these exacting conditions. Certainly, we cannot afford to leave any avenue unexplored which offers promise of helping us meet these problems of the future. We must plan our track structure to meet our present needs, and those which may be expected to arise during its service life, in a manner permitting the economical maintenance necessary for the progress and prosperity of the railway industry.

Reorganization Plan Arouses Opposition

WASHINGTON, D. C.

COMMENTS aroused by the report of the President's committee on a plan for governmental reorganization indicate prospects of a lively controversy over that part of the plan which proposes to transfer the independent regulatory commissions, such as the Interstate Commerce Commission, to executive departments, in spite of the announced intention to maintain the commissioners themselves in independent "judicial" sections.

Eastman's Comments

Commissioner Joseph B. Eastman of the I.C.C., in an address before the Boston Chamber of Commerce on January 21, without referring specifically to the new plan, pointed out that the commission "is primarily an arm, not of the executive branch of the government, but of the legislative," and although he is still awaiting reappointment to the commission following expiration of his term on December 31, he did not hesitate to express the hope that "in no reorganization that may be undertaken will anything be done that will impair the essential nature of the institution, give it the slightest political tinge, or endanger the characteristics which have distinguished it during the past half century." He believes, however, that the commission is in need of some measure of reorganization.

"Not all understand what kind of an agency the commission is," he said. "As the Supreme Court recently said in a unanimous opinion in regard to another similar agency, its duties are 'neither political nor executive, but predominantly quasi-judicial and quasi-legislative.' It is 'charged with the enforcement of no policy except the policy of the law.' It 'cannot in any proper sense be characterized as an arm or an eye of the executive. Its duties are performed without executive leave and, in the contemplation of the statute, must be free from executive control.' It is an 'administrative body created by Congress to carry into effect legislative policies embodied in the statute in accordance with the legislative standard therein prescribed, and to perform other specified duties as a legislative or as a judicial aid.' In the case of the Interstate Commerce Commission the duties which have specifically been found by the Supreme Court to be legislative far outweigh those which are judicial in their nature.

"The power to prescribe railroad rates for the future, for example, is a legislative power, and sometimes state legislatures have exercised it directly. Obviously, however, such direct use of the power is generally impracticable, so that the legislative bodies have resorted to the expedient of laying down the standards which they want followed, and then creating an expert body to apply those standards. And in order that this task may be done with impartiality and justice, they have made these legislative agencies nonpartisan, removed them from political influences, and made it necessary for them to base their decisions upon evidence taken in proceedings openly and formally conducted.

"That is the kind of an agency the Interstate Commerce Commission was intended to be, and the reason for its being. Whatever the faults of the commission may have been, and there have been many, it has never, I believe, been accused of any lack of integrity, it has kept its skirts clear of politics, it has endeavored to base its decisions on records of evidence made in open, public hearings, and it has fully reported the reasons for its actions so that the world might judge of their soundness. In other words, it has been faithful to its trust, as it understood it to be, and to the best of its ability. We are proud of that part, at least, of our record."

Harper Sibley on I.C.C.

Harper Sibley, president of the Chamber of Commerce of the United States, pointed out that the chamber had declared for maintenance of the position of the Interstate Commerce Commission and that "freedom for impartial exercise of judicial and quasi-judicial functions which relate to rights of individual citizens has been the point emphasized." "How far this freedom and this opportunity for impartiality might be possible if these commissions were allocated to executive departments for 'housekeeping' purposes perhaps will appear more clearly when the plan is more fully outlined," he added. "It is possible this proposal that the independent regulatory commissions should be assigned to executive departments may emerge as one of the most controversial. The proposal is that the administrative functions of the commissions should be absorbed by the departments, presumably those like the duties of the Interstate Commerce Commission in inspecting locomotives, investigating railroad wrecks, and enforcing laws as to safety appliances. The Chamber has consistently favored freeing regulatory commissions from such administrative duties. That would involve no legal questions.

"But relation of the commissions in their essential functions may be another matter. The President's committee, referring to the three departments,—judicial, legislative, and executive,—set up by the Constitution, says the commissions in their essential functions have grown into a fourth department, and would bring them within the executive department. Less than two years

(*Continued on page 233*)

Western Railway Club Discusses Freight-Car Design

W. H. Mussey describes important contributions which studies of static and dynamic stresses have made toward development of a structure with unitary action

THE subject of freight-car design and construction was presented in a paper read before the Western Railway Club on Monday evening, January 18, at the Hotel Sherman, Chicago, by W. H. Mussey, engineer of research, Pullman-Standard Car Manufacturing Company. Mr. Mussey began by tracing the development of American freight cars from the earliest types having a ratio of load-carrying capacity to dead weight of one to one, up to modern designs which, in some special cases, have a ratio of approximately four to one. He explained that this improvement, accomplished in spite of longer trains, longer runs between terminals and much faster average speeds, is no accident, but must be credited to the combined efforts of material and specialty manufacturers, car designers, car builders and car operators, all of whom have contributed to the study and improvement of car performance.

Mr. Mussey's paper was replete with extensive research and test data, charts and graphs, demonstrating that much of the guess-work has been taken out of car building and it is now possible to produce an efficient engineering design in which all of the materials are used to the best advantage. In other words, highly overstressed parts as well as under-stressed parts are avoided, thus assuring maximum strength for a given weight. As an example of what may be accomplished along this line, Mr. Mussey cited the Pullman light-weight, welded, alloy-steel box car which was built as a contribution to the car-building art and afforded a study of extremely light, welded car construction and the possible advantages of using low-alloy, high-tensile structural materials. After being subjected to extensometer, deflectometer and impact tests, in co-operation with the Association of American Railroads, this car was placed in revenue service with entirely satisfactory results for the first 12,000 miles which is the mileage accumulated to date.

At this point in his paper, Mr. Mussey described in some detail, and illustrated with lantern slides, the special test equipment and methods followed in studying car action under static and dynamic load and in impact tests.

He showed how extensometers are used to indicate static-load stresses at individual points in the car structure and how a deflectometer, designed and built by Pullman-Standard, measures the dynamic stress when a loaded car is slowly pulled over 2½-in. staggered wedge blocks to simulate the effect of vertical impact due to rail joints. He described how two series of impact tests are made to cover all service conditions: first, a fully loaded moving car being allowed to strike a single fully loaded test car at rest and, second, a fully loaded moving car striking a half-loaded test car at the head of five or six empty cars. In both cases, the tests are made at speed increments of 1 m.p.h. up to 16 m.p.h. While this is almost a destructive test, the data obtained is invaluable as a check on the structure and for the car designer and builder.

"Car structure essentials are thus brought to the attention of the car designer and builder," said Mr. Mussey. "He knows which stress members of the structure may be reduced in section, or, in rare cases, which may be increased. He knows the allowance that must be made for live or dynamic load over static load for each member, as the ratio is not constant for all parts of the car.

"With the usual materials of car construction, he knows the value of a pound at any particular point in the structure and how light a structure can be safely built. With alloy steel or other materials, he knows what further weight reductions can be made, taking into account higher permissible stresses and their corresponding deflections.

"He knows how to iron out peak stresses and deflections and how to avoid or cushion the reversal of stresses. He knows how to avoid dynamic, as well as static, stress concentration. He knows how to make the structure approach unitary action. He appreciates the fallacy of considering all members of a built-up structure of equal value.

"A freight car at rest is only of passing interest; the same may be said of static stresses and deflections; cars must be designed and built for service or dynamic stresses. Take two 50-ton cars, loaded to journal capacity, with one car moving at a rate of six to seven miles an hour and striking the other car at rest. What happens? The car structure must absorb or transmit impact forces for all speeds above this. Did it ever occur to you that a proper car structure might minimize damage to lading?

"The reasons for putting so much emphasis on the necessity of constructing cars to meet the dynamic forces must be evident. Light-weight freight cars are the goal which we are approaching. This means that every pound in a car or truck structure must be there because it is needed and it must be where it is needed. In the end, using only the required amount and the proper placing of this material means lower first cost to the railroad and an increase in ratio of lading capacity to light or tare weight, with attendant reduction in operating cost, which is the economic urge."

Discussion

After Mr. Mussey had finished reading his paper, a number of speakers discussed various phases of the subject of car design and construction and spoke in the highest terms of the original research work which the Pullman Standard Car Manufacturing Company has done in developing a method of locating and eliminating peak stresses due to static and dynamic load.

S. G. Down, vice-president, Westinghouse Air Brake

Company, pointed out the necessity of having modern air brake equipment, especially on long freight trains, if excessive slack action with attendant overstressed car structures and damaged lading are to be avoided. He said that the problem of adequate braking in early cars having a gross to tare weight ratio of one to one was simple as compared to present conditions when a ratio of 4½ to 1 may be secured in an efficiently designed light-weight car. In this case, with a braking ratio of 70 per cent of the light car weight, the braking ratio loaded drops to about 15 per cent, which is admittedly inadequate on mountain grades negotiated by all interchange equipment.

Mr. Down said that this condition has been met in the past by the empty and load brake which, however, has the disadvantage of being manually controlled. This condition is now met by a device, already applied to several thousand cars, which automatically determines whether the car is empty or loaded and makes the necessary change in braking power. Mr. Down explained the mechanical reasons why a brake pipe size of 1¼ in and a brake cylinder diameter of 10 in. must be retained. He described, however, another new air-brake development by means of which an auxiliary 4-in. "take-up" cylinder applied in conjunction with a 12-in. cylinder permits utilizing the larger braking pressure without any increase in air consumption.

L. W. Wallace, director of equipment research, A. A. R., said that Mr. Mussey and his associates in the Pullman-Standard Car Manufacturing Company deserve a great deal of credit for their extensive experimental work in measuring actual car stresses, determining where these stresses are concentrated and thus permitting cars to be designed with far more intelligence than has ever been possible before. He said that, as a result of this important research work, fundamental principles and factual data are now available upon which to project much lighter weight freight cars than have heretofore been possible. He expressed the opinion that it is entirely practicable to design a successful box car weighing from 5 to 6 tons less than the A.A.R. standard box car of 1932 to 1934.

K. F. Nystrom, superintendent, car department, Chicago, Milwaukee, St. Paul & Pacific, praised the research work in car design described in the paper, and said that this research is highly constructive, since it has developed facts which cannot be challenged. He commented on the large number of young men in the audience and urged them to take an interest in car equipment, since more important improvements in car design are apparently now under way than has been the case at any time during the last 30 years. Mr. Nystrom said he hoped to see the day when freight-car design will have progressed relatively as much as automobile design and mass production methods will produce superior cars at a substantial saving in cost.

F. H. Hardin, president, Association of Manufacturers of Chilled Car Wheels, complimented Mr. Mussey on the paper which, he said, is an extraordinary contribution to the efficiency and integrity of car design. He said that Mr. Mussey not only recognized the importance of dynamic forces, but devised ways and means of measuring and hence designing for them. Mr. Hardin said that light-weight car construction must be secured without sacrifice of strength and should preferably be secured without any large increase in cost. If all cars were fully loaded on every trip, light-weight equipment would be extremely valuable, but cars must be run to meet shippers' needs and not the requirements for most efficient operation. There is a big question, therefore, how much railroads can afford to pay for light weight.

In closing his paper, Mr. Mussey said that an efficiently designed, light-weight freight car, in which high dynamic stress concentrations are avoided, will last as long or longer than a conventional heavy car and give satisfactory service, with important operating economies which will, of course, be increased as the proportion of light-weight equipment in railway service increases.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading for the week ended January 16 totaled 700,238 cars, an increase of 1,709 cars or two-tenths of one per cent above the preceding week, an increase of 88,891 cars or 14.5 per cent above the corresponding week in 1936, and an increase of 137,412 cars or 24.4 per cent above the corresponding week in 1935. All commodity classifications except coal showed increases over the preceding week, and all commodity classifications except grain showed increases over last year. The summary, as compiled by the Car Service Division, Association of American Railroads, follows:

Revenue Freight Car Loading
For Week Ended Saturday, January 16

Districts	1937	1936	1935
Eastern	153,958	137,535	135,055
Allegheny	145,904	117,156	110,996
Pocahontas	53,086	45,356	40,373
Southern	105,157	92,805	85,115
Northwestern	80,935	71,826	62,720
Central Western	104,688	92,038	81,393
Southwestern	56,510	54,631	47,174
Total Western Districts	242,133	218,495	191,287
Total All Roads	700,238	611,347	562,826
Commodities			
Grain and Grain Products	32,135	34,669	25,189
Live Stock	15,833	13,933	14,963
Coal	161,049	140,751	137,448
Coke	11,879	8,661	7,806
Forest Products	31,920	28,377	20,754
Ore	11,097	6,036	3,836
Merchandise L.C.L.	161,279	149,016	151,822
Miscellaneous	275,046	229,904	201,008
January 16	700,238	611,347	562,826
January 9	698,529	614,853	553,518
January 2	587,953	541,826	497,274
December 26	.....	562,218	466,688
December 19	.....	729,696	600,666
Cumulative Total, 3 Weeks	1,986,720	1,768,026	1,613,618

Car Loading in Canada

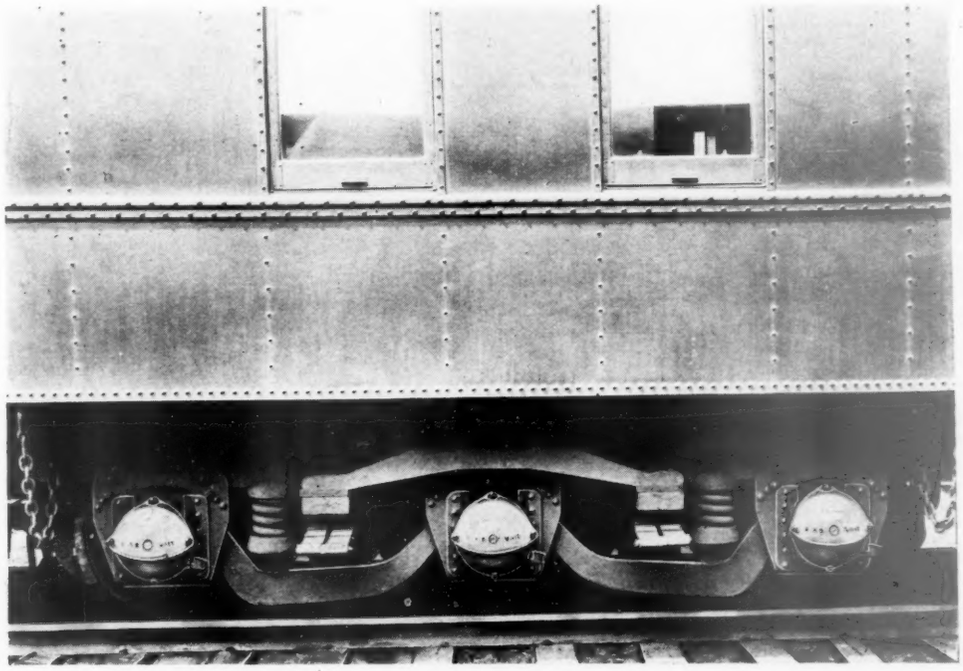
Car loadings in Canada for the week ended January 16 totaled 47,289 cars, as against 45,005 for the previous week and 40,221 for the second week last year, according to the compilation of the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
January 16, 1937	47,289	27,259
January 9, 1937	45,005	26,316
January 2, 1937	37,290	23,164
January 11, 1936	40,221	22,305
Cumulative Totals for Canada:		
January 16, 1937	92,294	53,575
January 11, 1936	74,679	42,549
January 12, 1935	74,707	39,751

THE ETHIOPIAN RAILWAY is unable to handle its present volume of freight traffic, according to reports received from Rome, Italy, by the United States Department of Commerce. The reports state that there was recently more than 100,000 tons of merchandise at Djibouti awaiting transportation into Ethiopia, which according to the rate of shipment before the Italian occupation, would require more than two years to move. The reports also state that work is also under way on a highway to parallel the railway from Djibouti to Moggio.

Disc-Flo Journal Bearing For High-Speed Service

A JOURNAL-BEARING unit, free oil lubricated without waste packing, has been developed by the Research Laboratories of the National Bearing Metals Corporation, St. Louis, Mo. This unit, known as the Disc-Flo, is designed to operate in passenger service under all weather conditions and has been tested in the laboratory at continuous speeds up to 200 m.p.h., with full load and temperatures as low as 40 deg. F. below zero.



Standard Six-Wheel Car Truck Equipped with Disc-Flo Units

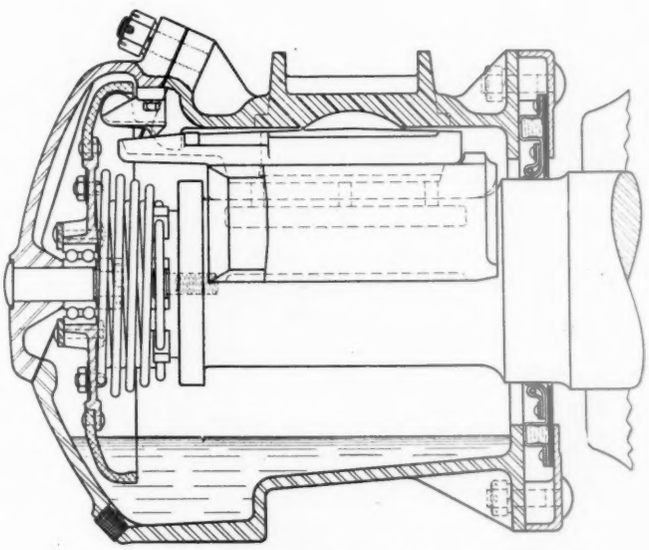
Two cars equipped with Disc-Flo units, placed in regular revenue service the middle of last June, have each made about 25,000 miles, it is claimed, with very satisfactory results. One of the illustrations shows a six-wheel car truck, equipped with Disc-Flo units. The principal design features of the Disc-Flo unit, as shown in the cross-section drawing, are as follows:

The journal box is made of cast steel. A manganese steel insert in the top of the box provides a long-life bearing surface for the equalizer and a ground concave fit for the self-aligning steel wedge.

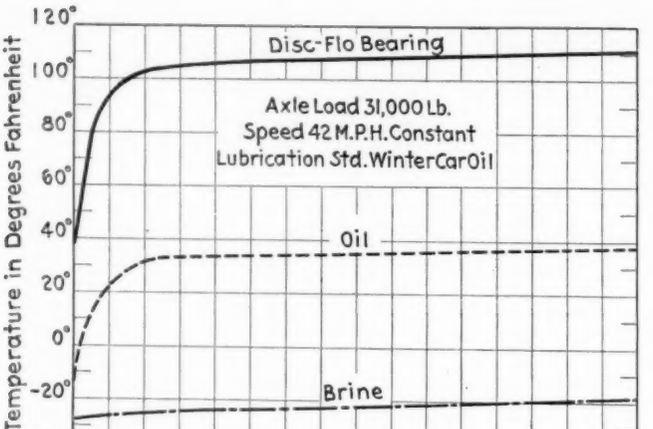
The journal bearing is made of bronze with babbitt lining. It has a flat back to eliminate any tilting which might be caused by coupling shock, starting or braking forces. The bearing has 180 deg. arc of journal coverage, which increases the thrust capacity 50 per cent. The system of oil circulation in the bearing is so shaped that the oil forms a wedge between the bearing lining and the journal, permitting a ready flow of lubrication under the crown of the bearing with rotation in either direction. A reservoir collects any foreign matter in the circulating oil, keeping it from getting between the bearing surface and the journal.

The lubricant is supplied to the bearing by means of a rotating disc, which picks up the oil and conveys it to the top of the box, where it is wiped off by a metal spoon; the oil then flows through the wedge and bearing to the journal. Oil in excess of that required for bearing lubrication overflows the wedge over the outside of the bearing back to the bottom of the box. The disc is propelled by a nest of two steel torsion springs of opposite pitch, firmly anchored in the disc and arranged with a crossbar on the free end, which engages a slot in the face of a driving plate securely attached to the butt end of the axle by means of two cap screws. The pressure exerted by the steel torsion springs insures a positive driving connection between the crossbar and the driving plate. The entire oil-circulating mechanism is mounted on the box lid, making for simple application and removal; the operation of the lubricating mechanism is in no way affected by either bearing or journal wear or movement of the journal.

A 5-in. by 9-in. Disc-Flo unit requires five pints of car oil. At 75 miles an hour approximately 2¾ pints (80 cu. in.) of oil per minute are used for lubrication, which is less than one-twentieth of the total amount of oil circulated by the disc. Cooler operation is obtained, because the oil is used both as a radiating medium and a lubricant. The lubricating system provides immediate initial lubrication with one-half wheel revolution,



Cross-Section Showing Details of the Journal-Bearing Unit



Cold Test of Disco-Flo Unit at 30 Deg. F. Below Zero

and the amount of lubricant circulated increases directly with speed. The oil, analyzed after 25,000 miles of service, was said to be in excellent condition, no emulsification having taken place.

A simple and effective oil seal is held against the surface-ground back on the journal box by a seal cover secured with bolts. This cover compresses the resilient oil-resisting ring gasket encased in a special treated washer, the inner edge of which fits around the journal.

To keep this seal tight around the journal, a garter spring is secured to bear on it all around the axle, and is arranged so that wearing parts are lubricated from excess oil flowing off the journal. All of these seal parts are mounted on a seal plate. The seal unit is so designed that it will not rotate with the axle, yet it permits the necessary vertical movement when the journal box is jacked up for bearing removal.

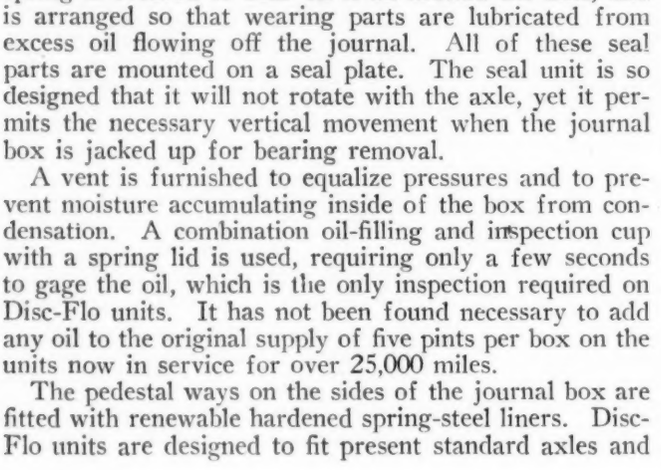
A vent is furnished to equalize pressures and to prevent moisture accumulating inside of the box from condensation. A combination oil-filling and inspection cup with a spring lid is used, requiring only a few seconds to gage the oil, which is the only inspection required on Disc-Flo units. It has not been found necessary to add any oil to the original supply of five pints per box on the units now in service for over 25,000 miles.

The pedestal ways on the sides of the journal box are fitted with renewable hardened spring-steel liners. Disc-Flo units are designed to fit present standard axles and pedestals without any changes, and no special tools are required for their application, removal or maintenance.

Operating characteristics, as determined from tests under identical loads and summer weather conditions, are said to indicate lower temperatures for the Disc-Flo unit than for the A.A.R. journal box, a reduction in temperature of 20 per cent at low speeds and 35 per cent at high speeds being obtained. These temperature tests were conducted in the laboratory in still air, so, while comparative, they are higher temperatures in both cases than would be secured in actual service. One of the charts shows temperatures of the Disc-Flo and standard A.A.R. journal bearings, these tests being made simultaneously in a Loadometer testing machine, having one end of the axle equipped with the Disc-Flo unit and the other end with an A.A.R. box and bearing.

By refrigerating the journal boxes, winter temperatures of minus 30 deg. F. were simulated to make a study of Disc-Flo units, using standard car oils. With minus 30 deg. F. box temperature, oil was said to reach a running temperature of plus 37½ deg. F., and bearing, plus 112 deg. F., with 15,500 lb. load per bearing at 42 m.p.h. on a 5-in. by 9-in. journal. The second chart shows the sub-zero test curve.

Preliminary journal friction tests indicate that Disc-Flo units will have lower friction losses than conventional A.A.R. journal bearings.


275°
A.A.R.
Speed 50 M.P.H. Axle Load 31,000 Lb.
A.A.R. Lubricated with Std. Winter Car Oil and Packing
Disc-Flo Lubricated with Std. Winter Car Oil
Tested in Still Air 70° F. Ambient
Disc-Flo
174°
Temperature in Degrees Fahrenheit
Time in Minutes

Comparative Temperatures of Disc-Flo Unit and A.A.R. Bearing

Transport Industry In State of Siege

SOLVENT railroads should not be forced to repudiate their debts under the guise of reorganizing their capital structures, nor should unnecessary increase in cost of operation be loaded upon railroads by legislative acts, declared R. V. Fletcher, general counsel of the Association of American Railroads, in a speech on January 26 before the Transportation Club at St. Paul, Minn.

"As matters stand now," Mr. Fletcher said, "the transportation industry is in a state of siege. It is attacked on every side by zealous crusaders, many sincerely striving for the public good, many others insincerely seeking some form of self-aggrandizement. One of the most militant groups insists that the railroads should not be permitted to pay their debts. This insistence is sugar-coated by the use of the high sounding phrase—the necessity for reorganizing capital structures. But, in truth, the theory is that solvent railroads should, by some method, be forced to repudiate their solemn obligations by denying to those who have invested savings in railroad securities the right to exact payment. This demand for wholesale repudiation is not based upon any well founded view that the railroads are overcapitalized.

"The investigation and findings of the Interstate Commerce Commission demonstrate beyond cavil that the total par value of outstanding stocks and bonds of the railroads are five billion dollars less than the actual value of the property upon any recognized basis of valuation. It is not seriously contended that the money was not borrowed in good faith and honestly expended for the acquisition of property useful and actually used in the service of transportation. The idea seems to be that some odium attaches to the effort railroads made to deal honestly with those who have loaned them money. The rather common cry for an enforced reduction in capital

obligations has no foundation in justice, in logic nor in law.

"Not only should the zeal of the reformer leave undisturbed the capital structures of solvent railroads but there should be a cessation of legislation, the sole effect of which is to load the carriers with a burden of increased expense, with no corresponding benefit to the public.

"It is sheer folly to man the trains with employees that are not needed, or limit the length of trains according to artificial, arbitrary standards, or shorten the work day to the point where leisure is more abundant than health and sane living require. No one who has studied the question impartially really believes that more men than compose a standard crew are needed properly to operate a train, or that freight trains of more than seventy cars cannot be safely or economically operated, or that eight hours a day in railroad service is excessive or injurious to the health and welfare of the workers. In fact, the contrary is not seriously argued by those who advocate legislation to accomplish these ends. The contention, rather, is that it is the obligation of industry to improve employment conditions by adding to the payroll persons who contribute nothing to the profitableness of the enterprise, but whom it is the duty of the public to support.

"The fact is that many legislators select the railroad industry for all sorts of weird experimentation because, being a business affected with a public interest, the courts are less likely to interfere with the legislative will. This tendency to tinker with the natural laws which economic considerations dictate is especially strong in Congress, where the commerce clause of the Constitution furnishes a rich endowment of power. None of you can afford to be complacent in view of the possibility of legislation that may cripple the railroads today, but which almost certainly will be applied to other types of industry tomorrow. Certain it is that the same theory which limits the length of a train in the interest of putting more men to work will find a way to load your trucks, your factories and your shops with surplus man power, to your utter confusion and dismay.

"I am reluctant to abandon the hope that ultimately all of us may come to see the wisdom of combining the efforts of capital and labor in the effort to put the transportation industry upon a sound basis, which will enhance its ability to serve the public weal. I can, here and there, detect indications that relations are improving. For nearly fifteen years, we have had peace in the railroad world, so far as labor relations are concerned. The basic wage rate is now as high as it has ever been and the average yearly wage of $1,720 is very near the maximum of the pre-depression period. In the last twelve months, nearly 100,000 men have been added to the payrolls. It is true that the number of men employed has decreased by 600,000 since 1929, but it must be remembered that there is an annual loss of five per cent from natural causes.

"In what I have said, I am in a sense the spokesman of the railroads. Neither directly nor indirectly can I voice the opinion, nor comment intelligently upon the policies, of those large and useful groups that transport traffic upon the highways and the waterways. And yet, I am firmly convinced that whatever foes the railroads now confront will ultimately face our competitors. If the government takes over the railroads, the trucks, the buses and the boats will soon follow. If the railroads are overregulated to their detriment, the same fate is in store for others. If the demands of labor sound the death knell of transport upon the rails, our friends on the highway and the waterway will sit in anxious expectancy, listening for the same melancholy sound. Fundamentally, our interests are much the same. Indeed, as I see it, all these forms of transportation, auxiliaries and servants of industry, and their patrons and masters on the farm, in the factory and in the marts of trade are bound together as with hooks of steel. We have a common interest in establishing and maintaining, in this favored land of ours, a transportation system bottomed upon sound principles and sanely administered in the interest of humanity."

Mr. Fletcher urged that active competition among the various forms of transportation should be maintained, but he said that in accordance with every principle of justice and fair play, as well as the proper consideration of the public interest, all forms of transportation offering their service should be treated alike. "That is to say," he added, "they should be equally regulated or equally free from regulation. They should be equally subsidized or equally free from subsidies.

"Upon the assumption that the American people will insist upon government regulation of the business of transportation, and that to a high degree, my contention is that competition, in the ordinary sense of the term, becomes relatively unimportant, particularly in the matter of freight transportation, when the price is fixed by public authority and where the regulation of service is looked upon with covetous eyes by advocates of bureaucratic control. I am attempting here to do no more than to convince you that if you value competition as a useful adjunct to industrial prosperity, you must reverse your stand as to the desirability of complete governmental regulation. Every time you hamper and restrict the exercise of initiative by those who assume to manage these agencies of transportation, you limit and restrict the carriers' capacity to compete."

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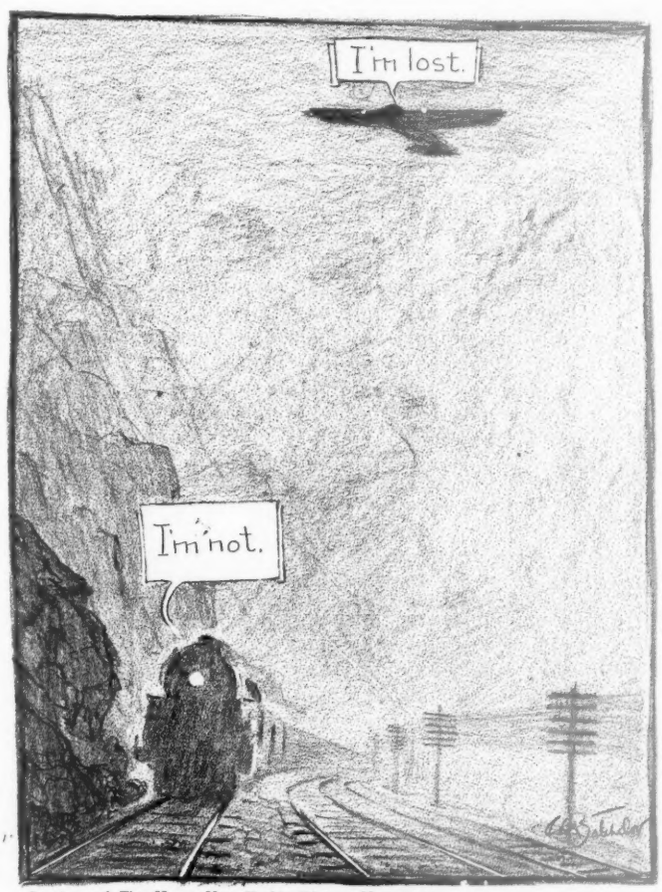


Courtesy of The News, New York's Picture Newspaper

Fog

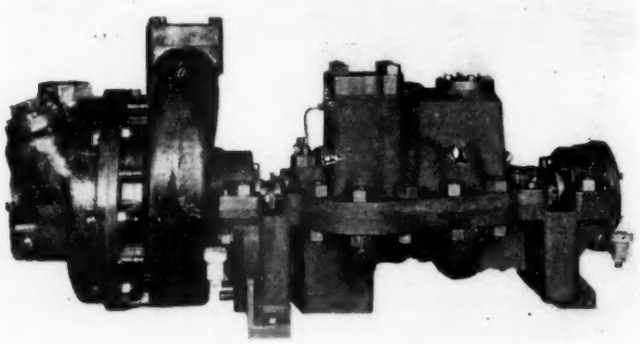
The Hancock Turbo-Injector

THE Hancock Turbo-Injector represents the result of several years of research and engineering development by the Consolidated Ashcroft Hancock Company, Inc., and has shown satisfactory results, both in test plant and in actual locomotive service. The following description is based on the presentation of W. J. Hall, of the Consolidated Ashcroft Hancock Company, Inc., at the Western Railway Club feedwater heating symposium on November 16.

The Turbo-Injector system consists of a four-stage centrifugal pump driven by a steam turbine, a condensing chamber, a combination check valve and control valve, an operating valve, a by-pass valve and an automatic heating valve.

With this device hot water is fed to a locomotive boiler by pumping the cold water from the locomotive tender through the condensing chamber which contains several nozzles and tubes quite similar to the nozzles and tubes used in a live-steam injector and which, in this device, entrain and mix the exhaust steam with the cold water. Consequently, the Turbo-Injector may generally be classed as an open-type feedwater heater in which the exhaust steam mixes directly with the feedwater. The principle employed which is new to locomotive practice is the use of these nozzles and tubes for entraining exhaust steam from the exhaust passages and for mixing this steam with the water.

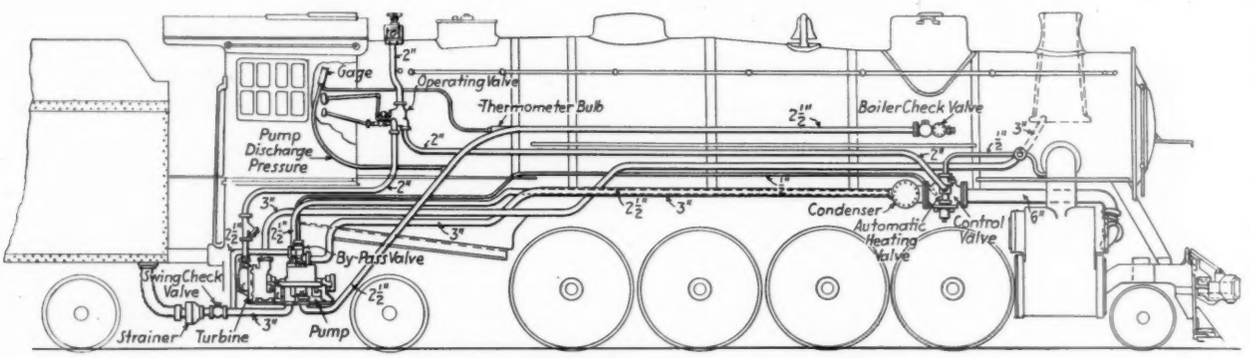
The various parts of the system function as follows: The steam turbine, which drives the four-stage centrifugal pump, has three stages, is rated at 50 hp., is equipped with a governor and runs at a maximum speed of 5,000 r.p.m.



The Turbine-Driven Pump Unit on the Turbo-Injector System

The pump has four stages which are hydraulically balanced to prevent end thrust. Both the pump and turbine rotors are mounted on a common shaft, and, together with their casings which are bolted together, form the pumping unit. This unit is normally located at the side of the locomotive below the cab.

The condensing chamber consists of a drum-like body having within it several nozzles and tubes much like those used in live-steam injectors. This condensing chamber can be located either at the front end of the locomotives or at the pumping unit or, if more convenient, it can be located anywhere along the side of the boiler. Cold water from the first stage of the pump enters this condensing chamber and in passing through the nozzles and tubes it entrains exhaust steam from the exhaust passages. The resultant hot water is delivered back to the pump through the by-pass valve.



Installation of the Hancock Turbo Injector on a Locomotive

This by-pass valve, which is mounted directly on the pump casing at the suction to the second stage of the pump, is a pressure-loaded check valve. It receives the heated water from the condenser and, dependent upon the speed of the pump, either delivers all of this hot water to the second stage of the pump or by-passes part of it back to the suction of the first stage of the pump. The function of this by-pass valve is to maintain a proportional pressure differential between the cold water delivered to the condenser and the hot water delivered from the condenser. Because of this by-pass valve, the Turbo-Injector maintains a constant delivery temperature at a given exhaust pressure throughout the entire capacity range of the pump. This valve also makes possible the regulation of the capacity of the pump from a maximum down to 30 per cent of that maximum.

The operating valve is to control and to regulate the flow of live steam from the boiler to the steam turbine. This valve is located either inside or outside of the cab within easy reach of the engineman.

The combination check valve and control valve is usually located at the front end of the locomotive and placed between the condensing chamber and the exhaust passages. This valve makes it possible to operate the pump with the locomotive working or drifting or standing. When the locomotive and the pump are both working both valves in this combination valve are open to admit exhaust steam to the condenser. When the pump is not working, but the locomotive is, both of these valves are closed to prevent the exhaust steam from the cylinders flowing back into the pump.

The automatic heating valve, which is bolted directly to the combined check valve and control valve, admits live steam from the boiler to the condensing chamber during the periods when the locomotive is standing or

drifting to heat the feed water under these conditions to a temperature of 200 deg. F. or more. This makes it possible to use this system to feed the locomotive boiler, whether or not the locomotive is working, because it is impossible under any condition to put cold feed water into the boiler. As its name implies, this valve works automatically and needs no attention whatsoever from the engineman. In addition to the above, a pressure and temperature gage is furnished. The pressure gage indicates the pressure of the water in the delivery pipe so that it is known that water is entering the boiler. The temperature gage indicates the temperature of the water entering the boiler at all times.

The operation of the Turbo-Injector is as follows: With the pump running, the water from the tender flows to the first stage of the pump and is delivered to the nozzles of the condensing chamber. As the water passes through these nozzles and into the condensing-chamber tubes, the exhaust steam from the locomotive cylinders is entrained and the mixture of exhaust steam and water is delivered from the condenser tubes back into the second stage of the pump. As this heated water passes to the second and to the third and then to the fourth stage of the pump, its pressure is built up gradually, so that when the water leaves the fourth stage of the pump it has sufficient pressure to lift the boiler check and discharge into the boiler.

The weight of the Turbo-Injector complete, including the various valves and exclusive of the piping, is 1,300 lb. The pumping unit itself weighs 800 lb. The Turbo-Injector has a maximum capacity of 14,000 gal. per hr., and its capacity can be regulated to any reasonable minimum.

The feedwater temperature attained varies with and depends upon the locomotive exhaust pressure, being approximately 15 deg. below the temperature of saturated steam at a pressure corresponding with the exhaust pressure. For example: Assume a locomotive is running with 10 lb. exhaust pressure. The temperature of saturated steam at 10 lb. pressure is about 240 deg. F. Under this condition it is said that the feedwater from the Turbo-Injector will enter the boiler at approximately 225 deg. F. with the savings in fuel and water related to the temperature rise of the water.

Ohio River's Worst Flood Cuts Railroads in Two

(*Continued from page 216*)

of all people within 50 miles of each side of the Mississippi river from Memphis, Tenn., to New Orleans, La., and would order the railroads to assemble all available equipment and truck lines 35,000 trucks, and both to assist in the movement of persons from this territory.

I.C.C. Authorizes Rerouting of Flood Traffic

Because of disruption of service by widespread flood conditions in the Ohio and Mississippi valleys the Interstate Commerce Commission, Division 3, has issued Service Order No. 61 permitting carriers so affected to reroute shipments over other lines than those specified by the shipper. The order provides that in each instance where the traffic is so routed or rerouted, the carrier responsible for the rerouting shall, within 24 hours, send a notice to the consignee stating the car numbers and initials, places and dates of shipment, the routing and respective routes over which the traffic is moving, and that charges for the rerouting shall be the same as they would have been over the regular route specified by the shipper.

In the case of shipments in private cars, which are subject to equalization of empty mileage, and also of fruits and vegetables, live poultry and other shipments customarily reconsigned upon instructions of the consignor, a telegraphic notice of the diversion shall be sent to the consignor by the responsible carrier. The order also provides that carriers need not proceed with reference to existing contracts concerning the division of rates, but that they may make any agreements they wish during the existence of this emergency.

Reorganization Plan Arouses Opposition

(*Continued from page 226*)

ago, the Supreme Court held unanimously that a Federal Trade Commissioner occupies no place within the executive department of the government, exercises no part of the executive power vested by the Constitution in the President, and consequently is not an official who can be removed by the President at his pleasure, although ten years ago the court upheld such a power in the President as to officials in the executive branch. As to the latter, Congress cannot limit the President's powers of removal, but Congress can prevent his exercise of the power as to members of the independent regulatory commissions to those grounds Congress itself prescribes."

John E. Benton, general solicitor of the National Association of Railroad and Utilities Commissioners, in a bulletin to the members said: "Plainly, if this plan is adopted, we shall no longer have the Interstate Commerce Commission as we now know it, although the section composed of commissioners may be so denominated. The commissioners can no longer originate regulatory policies or determine what investigations shall be made or how they shall be conducted or what evidence shall be brought into the record. All that will be done by the administrative bureau, which will exercise all of the powers of the present commission, except only the decision of cases by the judicial section, upon records presented to that section by the administrative bureau. In view of the volume of work which must be done, the administrative bureau will in the first instance decide the case and issue orders. From these orders appeals may be taken to the commissioners, upon which they will act in a purely judicial capacity upon the records presented to them."

"Labor" the official publication of the railroad labor organizations, published an objection to placing the commission in the Department of Commerce on the ground that for the greater part of its existence "that department has been dominated by Big Business." It said the commissions should be left independent.

W. R. Scott, president of the National Industrial Traffic League, has appointed a special committee to study the reorganization proposals submitted to Congress by the President.

TWENTY-SEVEN PER CENT of the 14,000 suggestions received by the Pennsylvania's Bureau of New Ideas since its establishment on November 1, 1927, has been found worthy of adoption, according to the latest notices from President M. W. Clement reminding P. R. R. employees of the Bureau's functions. The Bureau of New Ideas was inaugurated to develop suggestions for improving service and methods of operation.

NEWS

Railroad Revival Seen by Eastman

Says jurisdiction of I.C.C. should be extended over all forms of transport

"'Old Man Railroads' is being rejuvenated. He is wearing new clothes, stepping out, and beginning to court the coy shippers and passengers again," said Commissioner Joseph B. Eastman of the Interstate Commerce Commission in an address before the Boston (Mass.) Chamber of Commerce on January 21.

"Without being at all critical, because it is one of the normal ailments," he said, "there was a time when the railroad industry was showing some signs of incipient senility. It is something which happens to all of us, but the advantage which an industry has over an individual, at least so far as this world is concerned, is that it can be born again. That is what I think is happening to the railroads, and I rejoice that it is so. Of course there are growing pains, but that is to be expected. In his remarks last week, Mr. Gormley spoke very kindly of the commission, but he did exhibit some grief over what he called its 'malnutrition diet.' Yet I think he will agree that passenger fares of 3.6 cents per mile, to say nothing of Pullman surcharges, were somewhat too rich a diet for the patient, and I am hoping that he will agree, one of these days, that surcharges or nuisance charges, as many call them, were a little too indigestible a sauce to put on top of freight rates. However that may be, he may be sure that the notions of the commission with respect to diet, like those of most physicians, are capable of change. The commission is in favor of a well-balanced ration, and if experience shows in any case that the diet which it has prescribed is deficient in fats or sugars, I am sure that it will be disposed to do what it can to rectify the matter.

"The fact is that no form of transportation can expect to prosper, now or in the future, unless it utilizes all the resources of modern engineering and scientific research and shapes its organization to that end. And to be effective, it must for this purpose be an organization of the industry and not of individual carriers. What Mr. Gormley said to you last week indicates that the railroads are beginning to appreciate that fact, although in my judgment they have not yet gone far in this direction, and are approaching the job timidly where they should be bold."

Mr. Eastman also criticized "the drive of the railroads to emasculate the famous fourth section of the interstate commerce act, which prohibits charging less for a long haul than for a short haul over the same line or route without the permission of the commission. It was situations such as that section was designed to correct which were one of the chief reasons for the creation of the commission in 1887, and which were putting competing water lines out of business at the expense of those who had to pay the higher rates for the shorter hauls," he said. "The only authority which can bring competition under proper restraint, without doing away with it, and prevent these disastrous results is the authority of the government.

"I hope to see the time come when the jurisdiction of the commission will be extended more fully than it now is over the entire field of transportation, including water and air. This is not because I want the commission to be aggrandized, for we have reason to know that any pleasant feeling of importance that might be a by-product would be much more than offset by the hard work involved, but because the transportation system cannot be dealt with intelligently and well except as a unit."

N. & W. Better Service Meetings

Norfolk & Western employees will hold 220 Better Service Club meetings at 20 different points on that railroad during the next 11 months, according to the schedule announced on January 18.

Leiserson Re-Appointed to National Mediation Board

President Roosevelt has nominated William M. Leiserson, chairman of the National Mediation Board, for reappointment for a term ending February 1, 1940.

Legislative Rate Making in Canada

Another attempt to obtain lower freight rates on grain from the Prairie Provinces to British Columbia for domestic consumption failed when the Dominion Cabinet decided, in an order-in-council last week, to confirm the most recent decision of the Board of Railway Commissioners against the reduction.

An appeal was taken to a committee of the Cabinet by Thomas Reid, Liberal Member of Parliament, after the Board had declined to equalize domestic and foreign rates on feed grains and mill feeds.

In a bill on the House of Commons order paper, Mr. Reid seeks to accomplish a similar purpose by legislation, and the Cabinet's dismissal of the appeal will involve his proceeding with the bill.

P.R.R. to Electrify to Harrisburg, Pa.

Directors authorize extension for both freight and passenger service

The board of directors of the Pennsylvania, on January 27, authorized completion of the electrification of its lines for both passenger and freight service east of Harrisburg, Pa. The company's four-track main line is now electrified between New York, Trenton, N. J., Philadelphia, Pa., Wilmington, Del., Baltimore, Md., and Washington, D. C., as are also the commutation lines around Philadelphia and New York.

The chief parts of lines in the new electrification are the main line from Paoli, Pa., just west of Philadelphia, through Lancaster to Harrisburg; the low-grade freight line from Morrisville, Pa., near Trenton, N. J., via Columbia to Enola yard, near Harrisburg; the freight line from Columbia, Pa., following the course of the Susquehanna river to Perryville, Md., and the freight line from Monmouth Junction, N. J., to South Amboy, with the necessary yards, connecting branches and equipment. It will require about 18 months to complete the new work, during the progress of which over 10,000 men will be employed directly on the project and a like number in industries furnishing materials. The financing will be provided through a proposed $52,670,700 bond issue. The large freight and passenger yards at Harrisburg, Enola and South Amboy will be electrified to permit the movement of electrically-operated trains in and out of the yards and stations at these places. Additional yard electrification will also be installed at Philadelphia and Perryville. The company's announcement states that the new work will involve the electrification of 315 miles of line and 773 miles of track, and upon its completion, the Pennsylvania will have 2,677 miles of electrified trackage, or 41 per cent of the total electrically-operated standard railroad track in the United States.

Colorado Seeks to Take Over Denver-Leadville Branch

House bill No. 301, which proposes to create a South Park Improvement District for the purchase of the Denver-Leadville branch of the Colorado & Southern, has been submitted to the Colorado legislature by Representative McGinley.

Wheeler Probes Listing of Stocks

Practices of New York Stock Exchange considered by Senate committee

Hearings before the Senate committee on interstate commerce in connection with its investigation of railroad finance were resumed at Washington on January 26 after an adjournment on January 15. Richard Whitney, former president of the New York Stock Exchange, was questioned further regarding the practices of the exchange in passing on applications for the listing of securities, after Chairman Wheeler of the committee had raised the question whether it was proper for the governors of the exchange to vote on the listing of securities in which they had an underwriting interest, citing particularly listings of Alleghany Corporation securities in 1929 and 1930.

Mr. Whitney said there was no rule preventing a governor whose firm had an underwriting interest from voting on the listing of a security but that he was confident that no governor ever allowed his personal interest to influence him in the discharge of his duties. He also said he had been informed that it had been the usual practice of the members of the committee on stock list to abstain from voting on applications for the listing of securities of a new company when they had an interest in the underwriting of such securities but that they did not feel that it was necessary to abstain from voting in the case of additional issues of companies which were already listed on the exchange or where it was evident that the other members of the committee considered the security eligible for listing. Furthermore, in recent years, he said, it has been the policy of the exchange not to allow any security which was being offered to the public to be dealt with on the exchange until it had been distributed and the underwriting syndicate dissolved.

He said he realized, however, that if a governor votes to list a security in which he or his firm has an underwriting interest his motives may be misunderstood. Therefore, if it is felt desirable after consultation with the Securities and Exchange Commission, he was sure that the exchange would be willing to codify its practices and avoid any possible misunderstanding by adopting a rule preventing any governor from voting to list any security in which he or his firm has an underwriting interest.

Senator Wheeler had put into the record copy of a confidential memorandum prepared for the committee on stock list by J. M. B. Hoxsey calling attention to "an element of peculiar danger in the set-up of the financial structure of certain holding companies," which he said "lies in the attenuated degree of equity in the earnings of the constituent operating companies which may be represented by some or all of the securities of the holding company. This danger," he added, "is accentuated by the fact that such companies are usually organized during periods of prosperity, permitting the capitalization of relatively large earnings. During the continuance of such periods of prosperity the securities have large earning power and command good prices but, when the inevitable recession in prosperity takes place, violent fluctuations in the earnings may render such securities, temporarily at least, almost literally valueless except for their voting rights, if any."

A Hint from an Advertising Expert

Bruce Barton, an advertising leader, declared recently: "We shall see much reorganization of boards of directors. I venture the prediction that the time will come when the great industrial concern will have on its board one or more representatives of the public. This representation may be on a revolving basis. The public director this year may be an Iowa farmer; next year a country doctor from Alabama; the third year a school teacher from Massachusetts."

And why hasn't some big corporation done just that? Such an action would carry greater conviction to the public than years of speeches or miles of glowing press releases.

—From "Business Week"

R.F.C. Extended to 1939

President Roosevelt on January 26 signed the bill extending the life of the Reconstruction Finance Corporation until June 30, 1939, which was passed by the Senate on January 15 and by the House on January 22.

Miller Addresses Washington Transportation Association

Carroll Miller, chairman of the Interstate Commerce Commission, spoke informally at a luncheon meeting of the Washington Transportation Association on January 21. The annual meeting of the association will be held on February 21.

Two Million Mile Mark Passed by Burlington Zephyrs

Coincident with the arrival in Chicago and Denver on January 26 of the 12-car Burlington Zephyrs, the total mileage operated by the Burlington's fleet of eight streamline stainless-steel trains reached the two million mark. At the same time the 500,000-mile mark was passed by the two Denver Zephyrs.

First place in total mileage for individual Zephyrs goes to one of the former Twin Zephyrs, now the Ozark State Zephyr, operating between St. Louis and Kansas City, which has to its credit a total of 515,041 miles. The other small Twin, rechristened the Sam Houston, operating between Houston and Dallas, is credited with 508,938 miles. The pioneer Zephyr, operating between Lincoln and Kansas City, Mo., via Omaha, has an aggregate of 463,330 miles.

Six-Hour Day Claim Rejected in Britain

Wage tribunal finds that proposal would bring prohibitive costs

The decision of the Railway Staff National Tribunal of Great Britain rejecting the six-hour-day claim of the Associated Society of Locomotive Engineers and Firemen, which was noted briefly in the *Railway Age* of January 9, is reported in detail in a recent issue of the Railway Gazette (London). This is decision No. 2 of the tribunal of which Sir Arthur Salter, eminent economist, is chairman. Decision No. 1 was issued last July; it restored 1.25 per cent of the 2.5 per cent deductions in railway wages which had been in effect since 1931, along with further cuts for higher-paid workers, which latter were restored in August, 1934.

The present decision points out that the Associated Society of Locomotive Engineers and Firemen's proposal was made on behalf of 71,309 locomotive employees out of the 330,000 workers covered in existing wage agreements. The Associated Society asked in addition to the six-hour day a restoration of the remaining 1.25 per cent deduction, increased over-time rates, and a six-day vacation with pay each year. All of which the tribunal estimated would cost £9,704,000 annually, the six-hour day accounting for £6,097,000.

From these estimates the report proceeds to consider the effect of granting like concessions to the entire staff. Such an extension of the six-hour day would cost £30,000,000 a year, while a similar application of all concessions asked by the enginemen would cost £50,000,000—and "All earnings of the railways could not suffice for such a sum in addition to present wages, even if all classes of investors, including debenture holders, were deprived of their interest and dividends."

The tribunal called attention to the fact that its July, 1936, decision, restoring 1.25 per cent of the previous deduction, and the time-and-a-quarter rate for overtime, was to be operative for a year. It sketches the background of this July decision, suggesting that the improvement in railway results has been better than the estimates on which it then based its findings. Also, it refers to its refusal to accept the standard revenue set forth in the Railways Act, 1921, "as a criterion to consider whether it can endorse a claim or not," giving workers hope of eliminating the remaining 1.25 per cent deduction when it suggests that "if the present improvement continues, railway employees should obtain a share in the improvement without waiting for the large increase in railway profits that would be required before the revenue contemplated in 1921 can be reached."

As to the granting of vacations, the report says that the cost "might not in itself be an insuperable difficulty;" but it believes "in general" that as the financial situation permits "a restoration of standard rates and conditions should take precedence over demands going beyond them."

Atlantic Board Hits "Make Work" Bills

Adopts resolutions opposing six-hour day and other similar proposals

Resolutions opposing the six-hour day for railroad labor and other "make-work" proposals were adopted by the Atlantic States Shippers Advisory Board at its annual meeting held in New York on January 21. The Board also reaffirmed its previous position in opposition to any proposal designed to bring about government ownership of the railroads.

The action on the "make work" measures was embodied in three resolutions—one directed against federal legislation of this type, the second against such legislation in the various states and the third instructing representatives of the Board to follow through by making the resolutions known to legislators.

The usual reports of commodity committees received at the meeting estimated that freight car loadings in the territory of the Board during the first quarter of 1937 will total 619,779 cars or an increase of 9.6 per cent over the 565,656 cars actually loaded during the first quarter of 1936. Increased loadings in all but three commodity classifications are expected. The estimated decreases are in loadings of hay, straw and alfalfa, 60 per cent; sugar, syrup and molasses, 2.4 per cent; and brick and clay products, 6.1 per cent. Reports on prospective l.c.l. shipments gathered from 17 of the principal l.c.l. originating cities show anticipated increases in such shipments ranging from 5 to 75 per cent as compared with last year's first quarter; no anticipated decreases in l.c.l. are recorded.

From the discussion of the docket subject "Special Types and Sizes of Railroad Equipment" came the decision to appoint a special committee to study the requirements of shippers as to sizes and types of freight cars. It is hoped to have a report from this committee in time to place its suggestions before the forthcoming June convention of the Mechanical Division, Association of American Railroads, in Atlantic City, N. J.

The Board plans to participate in the observance of March as "Freight Claim Prevention Month," in which connection it will co-operate in a program to promote prevention by specializing on the education of railroad freight handling forces and the shipping and packing forces of major industries. It was stated by Edward Dahill, chief engineer, Freight Container Bureau, Association of American Railroads, that the freight container exhibit will again be assembled and brought up to date by the addition of material as to new packages and containers. The exhibit will then be shown at various cities throughout the country. The report of W. L. Harvey, secretary of the board, notes that "freight loss and damage prevention activities are occupying increasingly more time in contact work and correspondence."

At the election of officers, J. K. Hiltner, traffic manager, U. S. Pipe & Foundry Company, Burlington, N. J., was chosen general chairman. G. F. Hichborn, general traffic manager, U. S. Rubber Products, Inc., New York, remains first alternate general chairman, while C. J. Goodyear, traffic manager of the Philadelphia & Reading Coal & Iron Co., succeeds Mr. Hiltner as second alternate general chairman. F. M. Varah, manager, traffic bureau, Syracuse (N. Y.) Chamber of Commerce, becomes general secretary, succeeding A. C. Welsh, secretary traffic division, Brooklyn Chamber of Commerce.

At the luncheon held in connection with the meeting, Phillip A. Benson, president of the Dime Savings Bank, Brooklyn, N. Y., spoke on "Investors' Relation to Railroad Problems."

Hearing on Pettengill Bill

The House committee on interstate and foreign commerce has announced an open hearing on January 28 on the Pettengill long-and-short-haul bill, H.R. 1668, stating that in view of the exhaustive hearings held in the previous Congress on the bill, which was passed by the House, the committee desired to make the hearing as brief as possible.

"Spotting" Order Upheld by Court

A three-judge statutory federal court, sitting in the district court for the northern district of Indiana, in a decision rendered on January 23 held valid an order of the Interstate Commerce Commission on May 14, 1935, in which it required the Elgin, Joliet & Eastern to cease and desist from making allowances to the East Chicago Dock Terminal Company for "spotting" service within its plant at East Chicago, Ill.

Hearings Resumed in Ex Parte No. 115

Testimony on behalf of the railroads in support of their application for increases in freight rates in Ex Parte No. 115 was resumed before Commissioner Aitchison of the Interstate Commerce Commission at Washington on January 26 after an adjournment on January 15. Being informed that the carriers would be prepared to submit their evidence concerning their proposal to change the percentage relations of fifth and sixth classes in Official territory Commissioner Aitchison suggested that instead of proceeding to the hearing of shippers' testimony after the completion of the railroad evidence on the basic commodity list the railroads introduce their testimony on the fifth and sixth classes following the commodity list and preceding the shippers' testimony. It was the understanding that evidence relating to the class rates would not be reached on the program until some time after February 1.

R. V. Fletcher, general counsel of the Association of American Railroads, had sent to Commissioner Aitchison a long list of articles on which the railroads propose to file tariffs and which they therefore wish to withdraw from the scope of this proceeding, hoping that they will not be suspended but that if they should be they may be again consolidated with Ex Parte No. 115.

R.R. Trends—Long And Short Range

Dunn sees disaster if former is accelerated; latter has aided recovery

"There has been a short range trend in railway affairs since the bottom of the depression which, if allowed to continue, will help restore prosperity and employment in this country, but there has been a long range trend for 30 years which, if accelerated by legislation now sought by railway labor leaders, will lead to disaster and probably government ownership," said Samuel O. Dunn, chairman of the Simmons-Boardman Publishing Corporation and editor of *Railway Age*, in an address before the Southern and Southwestern Railway Club at Atlanta, Ga., on January 21.

"Real federal regulation of railways began 30 years ago this month when the Hepburn Act giving the Interstate Commerce Commission its first actual power to regulate rates went into full effect. The effects the long range trend under government regulation has had is strikingly illustrated by the differences in the changes that have occurred in the prices of railroad and industrial stocks.

"Thirty years ago this month the average price of railway stocks as reported by Dow-Jones was 132. It is now 53, a decline of 60 per cent. Thirty years ago the average price of industrial stocks as reported by the same authority was 96. It is now 179, an increase of 85 per cent. It would appear from these figures that if there had been as much government in other industries as in the railroad industry during the last 30 years the average price of industrial stocks would now be only about one-fifth as high as it is.

"The figures reflect how effective have been the means used by government to reduce the earning capacity of the railroad industry. It is beginning now to regulate other industries.

"Where do the railways and their employees now stand as compared with 30 and 20 years ago? Average investment in railway property per employee is $24,000 as compared with $13,000 in 1926 and $8,000 in 1906—an increase of 137 per cent within twenty years and of 196 per cent within thirty years. This large increase in investment *per employee* has occurred principally during the last decade and has been principally due to reduction of employees from about 1,780,000 in 1926 to 1,065,000 in 1936. But it did provide the means which made possible the increase in so-called 'productivity' per employee. How much then has the so-called 'productivity' of employees increased over periods of years as compared with their compensation? The amount of traffic handled per employee last year was 32 per cent greater than 20 years ago in 1916, while their average compensation was 94 per cent greater—$1,728 last year as compared with $892 in 1916. The amount of traffic handled per employee last year was 95 per cent greater than 30 years ago in 1906,

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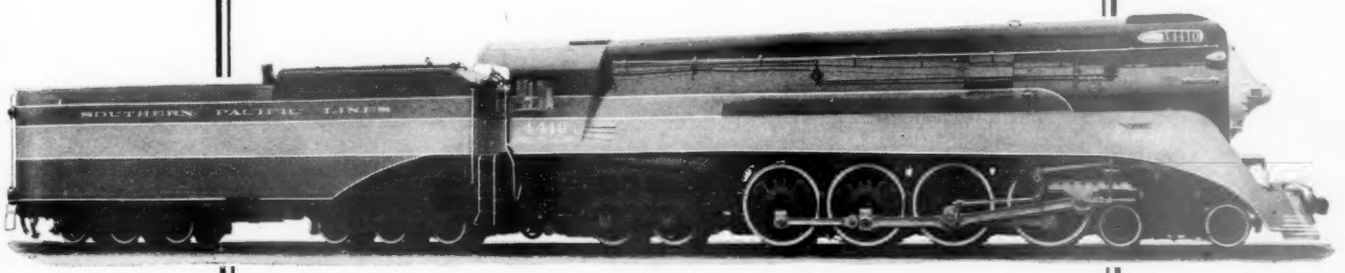
BUILT BY LIMA

FOR THE

SOUTHERN PACIFIC



SIX of the above locomotives were delivered during December by Lima Locomotive Works, Incorporated, to the Southern Pacific Company. • This power will be used for the new *Daylight* Specials between San Francisco and Los Angeles. The trains are now building and the cars and locomotives harmonize in color and streamlining. An order for fourteen additional locomotives of this type has been placed with Lima by the Southern Pacific Company • These additional locomotives, however, will be larger and will have 80-inch drivers.

LIMA
LOCOMOTIVE WORKS
INCORPORATED

LIMA LOCOMOTIVE WORKS, INCORPORATED, LIMA, OHIO

while average compensation was 192 per cent greater—$1,728 in 1936 and $592 in 1906. Average compensation per employee increased relatively three times as much within the last 20 years as the amount of traffic handled per employee. This relatively much greater increase in employees' compensation than in traffic handled mainly explains why the railways require much higher rates than formerly. But the advances in rates have never been anywhere near as large in proportion as the advances in wages, and the trend of return on investment has always been downward. The average return earned in 1906, the most prosperous year before the war, was 6.1 per cent; in 1926, the most prosperous year since the war, 5½ per cent; and in 1936 only 2½ per cent.

"The bearing of these facts on current demands for 'make-work' legislation, and especially for a 6-hour day at 8 hours' pay, is direct and obvious. These demands are based partly upon the so-called 'productivity' of employees. But the figures show that during the last two decades compensation per employee has increased vastly more than traffic handled per employee. It is claimed that the 6-hour day legislation is needed to increase employment. But why, ostensibly in the interest of increased employment, should there be a demand not only for a 25 per cent reduction in hours of work, but also for a 33⅓ per cent increase in the average wage per hour? As traffic increases the railways will need many more employees and can pay them the present wages. There already, since March, 1933, has been an increase of almost 200,000 in employees. Obviously, the best possible way to make it financially difficult to add employees would be to increase by 33⅓ per cent the average hourly wage of present employees.

"There is nothing whatever in the facts that affords any justification under present conditions for a demand for a 33⅓ per cent increase in hourly wages. The legislation would cause an increase in the ratio of operating expenses to gross earnings that would so financially cripple the industry as to make its continuance under private ownership almost impossible.

"The railway labor leaders know this. But they do not fear government ownership. Most of them favor it. They hope labor is going to control the federal government in future, that under government ownership labor leaders would dictate the running of the railways, and that the losses incurred in paying wages excessive in proportion to earnings would be borne by the taxpayers. Will any or all of this proposed make-work legislation be enacted? Not if the public becomes aroused to what is involved and intended.

"The short-range trend since 1933 has been favorable. In 1933 railway gross earnings were 51 per cent less than in 1929; in 1936 only 36 per cent less. In 1933 net operating income of $474,300,000 was 62 per cent less than in 1929. In 1936 net operating income of $645,000,000 was only 48 per cent less than in 1929. In 1933 purchases of equipment and materials were only $273,000,000, or 80 per cent less than in 1929, while in 1936 they were $728,000,000, or only 49 per cent less than in 1929.

"These figures show both that a large measure of recovery has occurred in the railway industry and that it has a long way to go to complete recovery. Present indications are that it will make much progress in 1937 if given a chance. Freight loadings in 1936 averaged 68½ per cent as large as in 1929. They are now 80 per cent as large. With a continuing increase in traffic and without any abnormal increase in labor costs the railways will this year make another large increase in gross earnings, maintenance, expenditures, employment, net operating income and buying from other industries. There is nothing the matter with the railways that a large increase in their traffic unaccompanied by abnormal increase in their labor costs of operation will not cure."

Conciliation Board in Canadian Wage Case

Judge F. L. Smiley, Ottawa, was appointed third member and chairman of the board of conciliation and investigation established to deal with a dispute between the Canadian National and its clerks and other classes of employees, members of the Canadian Brotherhood of Railway Employees.

The appointment was made by Hon. McL. Rogers, Minister of Labor, in the absence of a recommendation from the other board members, W. Sanford Evans, Winnipeg, and Howard S. Ross, Montreal, nominees of the company and employees, respectively.

It was said 10,000 employees throughout Canada were directly affected by the dispute, which relates to their demand for restoration of basic rates of pay, involving discontinuance of a wage deduction of 10 per cent now in effect.

State Truck Law Held Burden on Interstate Traffic

A law of the state of South Carolina limiting the weight and width of motor trucks was held to impose an unreasonable burden upon interstate commerce over highways constructed with the aid of federal funds in a recent decision by a three-judge statutory federal court sitting at Columbia, S. C. The court granted an injunction asked by motor truck operators and the Interstate Commerce Commission to restrain the enforcement of the law, although the injunction does not apply on bridges and certain local roads. The court said that the states in the exercise of their police power may regulate the use of the highways for the protection of the highways themselves and the safety of the public using them, and certainly in the absence of legislation by Congress may make such regulation applicable to interstate as well as intrastate traffic, but that "they may not adopt arbitrary regulations, not reasonably necessary for the protection of the highways or of the public, which will directly burden interstate commerce. . . . Not only has Congress aided in the construction of the roads so that they may become the highways of such commerce, but in the enactment of the motor carrier act it has recognized truck traffic as a legitimate part of that commerce essential to the welfare of the public and subject to regulation for that reason. Congress has not attempted to regulate size and weight and there are great practical difficulties in the way of such regulation by Congress. It is of great importance, therefore, that regulation of this matter by the states be held within reasonable bounds, and that they be not permitted, under guise of exercising the police power, to exclude from their highways by unreasonable regulations the interstate commerce which Congress is regulating in the public interest and for the carrying of which it has aided in the construction of roads that form parts of a great national system of highways."

Morgenthau Objects to I.C.C. Recommendation on Surtax

Secretary Morgenthau of the Treasury is reported to have written to President Roosevelt objecting to the Interstate Commerce Commission's action in including in its annual report to Congress a recommendation that it reconsider the provision in the revenue law of 1936 imposing surtaxes on undistributed earnings of corporations because it imposes a penalty on those railroads which attempt to provide sinking funds for their bonds in accordance with requirements of the commission.

The Secretary is understood to have taken the position that the commission in this way stepped into the field of the executive branch of the government in a way in which it should not have except in cooperation with the department, while the commission has always considered itself independent of the executive branch and as an arm of the legislative. This letter is understood to have been the occasion for a conference on the subject at the White House on January 14 attended by Chairman Miller of the commission.

Illinois Central to Offer "Land Cruises"

Excursions into out-of-the-way places by private railway cars are being offered as a new travel idea by the Illinois Central. The first of the excursions, with Mexico as the destination, are scheduled to leave Chicago on February 8, February 28 and March 20. Referred to as "land cruises," these trips will be made in air-conditioned private cars and will be handled on an all-expense, escorted basis. In addition to visiting points of interest in rural Mexico, the travelers taking advantage of the first excursions will have leisurely visits to New Orleans, San Antonio, Mexico City, Puebla, the Mexican pyramids, Xochimilca, Taxco, Uruapan, Patzcuaro, Guadalajara and Guanajuato.

The February 8 passengers will see the Mardi Gras at New Orleans, and the March 20 group will spend Easter Sunday in Mexico City and also see Mazatlan, Tucson, El Paso and Carlsbad Caverns.

Meals enroute will be served principally in the private cars, each unit of which will have its permanent staff of employees. Every couple will have a private room, and the size of the party in any one car will be limited. The all-expense cost per person from Chicago will range from $615 to $740, depending upon accommodations and the length of trip.

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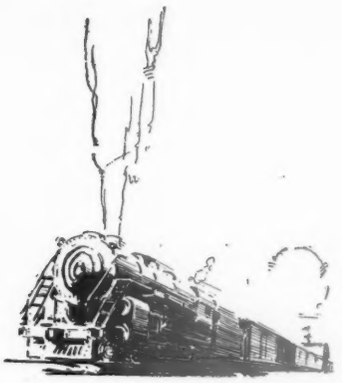
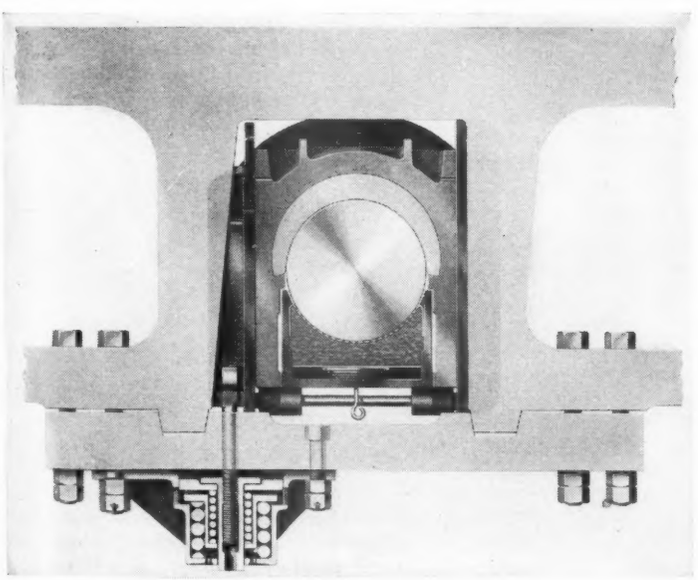


You cannot have both!

WITH A HAND ADJUSTED WEDGE



With a surface bearing, driving box temperature varies as much as 250° over short periods of time. Driving box size varies correspondingly.

No matter how perfectly the driving box wedge may be adjusted by hand, it is either too loose when the box is cold or too tight when the box expands. It cannot be right for both.

Franklin Automatic Compensator and Snubber automatically compensates for temperature change as well as wear. The wedge member automatically eases downward as the box expands and upward as it cools. The correct adjustment is always automatically maintained. The snubber member yields only to unusual shocks which avoids all possibility of excessive strains.

Like its twin, the Type E-2 Radial Buffer, it is one of the most effective devices in maintaining proper adjustment, easy riding and low maintenance costs.

When maintenance is required a replacement part assumes importance equal to that of the device itself and should be purchased with equal care. Use only genuine Franklin repair parts in Franklin equipment.

FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK CHICAGO MONTREAL

Equipment and Supplies

Milwaukee to Build Equipment

The federal district court at Chicago, on January 21, approved a petition of the railroad's trustees to make application to the Interstate Commerce Commission for authority to finance 75 per cent of the cost of constructing new equipment with equipment trust certificates. The cars to be constructed in company shops in 1937 include: 500 fifty-ton steel hopper cars; 500 fifty-ton automobile cars; 7 dining cars; 1 mail-express car; and 5 coach-baggage cars. In addition, the court was asked to approve the construction in company shops of 1,000 gondola cars and 22 air dump cars.

LOCOMOTIVES

THE MISSOURI PACIFIC is inquiring for six Diesel electric switching locomotives.

THE NORTHERN PACIFIC has ordered nine 4-6-6-4 type locomotives from the American Locomotive Company, and is inquiring for eight 4-8-4 type passenger locomotives.

THE UNION PACIFIC has ordered 25 locomotives of the 4-6-6-4 type, from the American Locomotive Company. In the *Railway Age* of January 23, this company was reported as contemplating the purchase of this equipment.

FREIGHT CARS

THE GRAND TRUNK WESTERN is inquiring for 100 gondola cars of 70 tons' capacity.

THE ST. LOUIS-SAN FRANCISCO has placed an order with company shops for the construction of 600 box cars, 250 hopper cars and 20 caboose cars.

THE ILLINOIS TERMINAL has ordered 100 gondola cars and 50 flat cars, all of 50 tons' capacity, from the Mt. Vernon Car Manufacturing Company. Inquiry for this equipment was reported in the *Railway Age* of January 23.

THE ILLINOIS CENTRAL has placed orders for 3,100 freight cars as follows:

No.	Type	Length	Builder
500	Auto box	40 ft. 6 in.	Pullman-Standard
500	Auto box	40 ft. 6 in.	Amer. Car & Fdry.
800	Auto box	50 ft. 6 in.	General American
300	Refrigerator	.....	General American
500	Hopper	.....	Pressed Steel
500	Hopper	.....	Ryan Car Company

Inquiry for this equipment was reported in the *Railway Age* of January 2.

PASSENGER CARS

THE ST. LOUIS SOUTHWESTERN is inquiring for 10 chair cars.

IRON AND STEEL

NEW YORK CENTRAL.—An order for 1,850 tons of steel has been given to the American Bridge Company for a permanent viaduct and temporary structure at 34th street and 11th avenue in New York City; the Thomas Crimmins Contracting Company, New York, are the contractors. An additional order for 3,100 tons of structural steel has been given to the American Bridge Company to be used on the West Side highway from St. Clair place to 135th street, New York City; the George F. Driscoll Company, New York, has this contract.

THE NORTHERN PACIFIC has divided an order for 10,000 tons of rails among the Carnegie-Illinois Steel Corporation, the Bethlehem Steel Company and the Colorado Fuel & Iron Company.

TRADE PUBLICATION

LOCOMOTIVE SERVICING FACILITIES.—In a 6-page folder designated as bulletin No. 26, the Ross & White Company, Chicago, presents some 20 photographs and drawings that depict coal, cinder and sand-handling facilities built by that company, together with various accessories pertaining to such facilities. Most of the photographs reproduced show plants completed during the last year.

Construction

ERIE.—The elimination of the North Broad street crossing of this road in the village of Johnson City, N. Y., has been ordered by the New York Public Service Commission. This is to be accomplished by constructing an over-crossing of the railroad at a point about 250 feet west of the existing crossing from Main street to North Broad street, at Brown street. The cost is estimated at $117,400 for construction and $102,925 for land and property damage. The railroad was directed to prepare the plans and carry out the work.

LOUISIANA & ARKANSAS.—This company has undertaken the work of altering its bridge across the Atchafalaya river at Simmesport, La., in order to adapt the structure to the government's flood control plan which involves increasing the discharge capacity of this river. The present structure, which is a combination railway and highway bridge, includes two 150-ft. fixed spans, two 300-ft. fixed spans, and one 300-ft. swing span, all on concrete piers, and timber trestle and embankment approaches. Alterations which are to be made to this structure will involve the construction of two new 300-ft. through fixed truss spans, the moving of the present 150-ft. span, the construction of a new creosoted pile and timber approach, and the construction of several new piers and one abutment. A contract has been awarded to the Virginia Bridge Company for furnishing the necessary steel at a cost of $93,500, while a contract covering the balance of the work has been awarded to the Massman Construction Company, Kansas City, Mo., at a cost of $743,400.

Supply Trade

The Pressed Steel Car Company, Inc., has moved its New York office from 80 Broad street to 230 Park avenue.

T. D. Montgomery, has been appointed manager of the foreign sales division of **Cutler-Hammer, Inc.,** Milwaukee, Wis.

James A. Cook, general sales agent of the **Standard Forgings Corporation,** Chicago, has been appointed vice-president, sales department.

E. A. Turner, vice-president of **The Standard Stoker Company, Inc.,** has been appointed vice-president and general manager in charge of operations, with headquarters, as formerly, at New York.

Muscoe Burnett, junior assistant sales manager of the **Oxweld Railroad Service Company,** has been promoted to sales manager with headquarters at Chicago, effective February 1.

George A. Sloan has been elected a member of the board of directors of the **United States Steel Corporation,** for the term expiring in April, 1937. During the past 10 years, Mr. Sloan has been identified with the textile industry.

W. L. Lentz, engineer of motive power of the New York Central System, has resigned to become associated with **The Standard Stoker Company, Inc.,** as assistant to F. P. Roesch, vice-president, in the capacity of sales manager, with headquarters at New York. Mr. Lentz was

W. L. Lentz

born on January 29, 1895, at Jersey Shore, Pa., where he was educated in the public schools. He later completed a mechanical engineering course in the International Correspondence School. During the years 1917 and 1918 he attended military schools at Cornell University and Fort Sill, was commissioned lieutenant in the Aviation Corps and instructed cadets in that branch of the service. He entered the service of the New York Central in May, 1913, and completed an apprentice course in the locomotive shops of that road; subsequently was assigned to road test work, and in 1919 was appointed apprentice instructor in the locomotive and car shops at West

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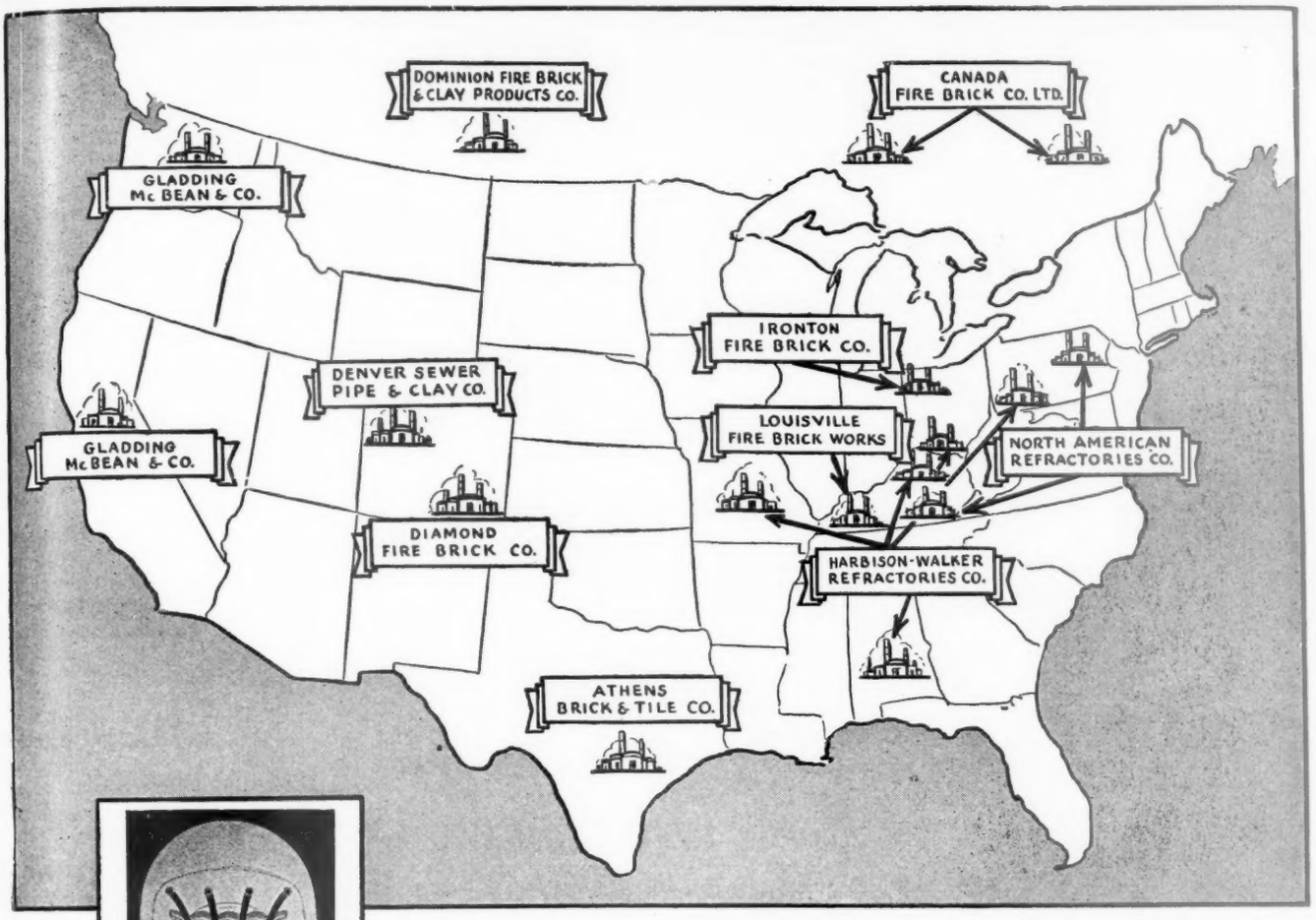
DOMINION FIRE BRICK & CLAY PRODUCTS CO.
CANADA FIRE BRICK CO. LTD.
GLADDING Mc BEAN & CO.
IRONTON FIRE BRICK CO.
DENVER SEWER PIPE & CLAY CO.
LOUISVILLE FIRE BRICK WORKS
NORTH AMERICAN REFRACTORIES CO.
GLADDING McBEAN & CO.
DIAMOND FIRE BRICK CO.
HARBISON-WALKER REFRACTORIES CO.
ATHENS BRICK & TILE CO.

To *AID* in Facilitating

RAILROAD OPERATION

The holding of locomotives out of service awaiting repair material is a handicap too serious to be overlooked.

As experienced railroad men we fully realized this and provided sources of Arch Brick supply at convenient points throughout the country.

These supply sources, as indicated on the map above, are so located as to care adequately for all railroads.

AMERICAN ARCH COMPANY

INCORPORATED

Locomotive Combustion Specialists

NEW YORK CHICAGO

Albany, N. Y. In May, 1920, he was transferred to the equipment engineering department of the New York Central at New York, successively occupying the positions of designer, traveling inspector, assistant engineer of motive power, and engineer of motive power, from which he recently resigned.

Compressed Industrial Gases, Inc., Chicago, heretofore a holding company, has become an operating company, and the nine former subsidiary companies now operate under the name of Compressed Industrial Gases, Inc. The former subsidiary companies were: Burdett Oxygen Company of Detroit; Butler Gas Products Company (Pittsburgh); Burdett Oxygen Company of Texas; Burdett Oxygen Company of Chattanooga; Burdett Oxygen and Hydrogen Company of Chicago; The Burdett Oxygen Company (Oklahoma); Wisconsin Oxygen-Hydrogen Company (Kenosha); Mo-Ark Oxygen Company (Ft. Smith, Ark.), and The Welders Supply Company.

OBITUARY

W. P. Bowman, vice-president and treasurer of the John A. Roebling's Sons Company, of New York, died on January 22 in the Post Graduate Hospital, New York, at the age of 68 years.

Financial

ALABAMA & FLORIDA.—*Acquisition.*—This company has applied to the Interstate Commerce Commission for authority to acquire and operate the property of the Alabama, Florida & Gulf, which has a line from Cowarts, Ala., to Greenwood, Fla., 32 miles.

ALABAMA, TENNESSEE & NORTHERN.—*Reorganization Plan Recommended by I. C. C. Bureau of Finance.*—The Bureau of Finance of the Interstate Commerce Commission in a proposed report has recommended that the commission approve a reorganization plan embodying so many changes in that proposed by the debtor company as to amount to a new plan. In so doing the bureau, in one of the first plans it has recommended, gave indications of its attitude on several points which are likely to come up in connection with other plans. The debtor's plan proposed a reduction in funded indebtedness from $4,224,289 to $3,381,600, substituted for the present stock liability 12,510 shares of no-par value common stock, and proposed a reduction in fixed interest charges from $239,546 to $43,590, creating a contingent interest liability of $138,790. The bureau took the position that the Reconstruction Finance Corporation has no equity superior to that of the prior-lien bondholders and that its claims must be determined with reference to the collateral security held; that the equity of the Railroad Credit Corporation is that of a secured creditor with a junior lien on certain prior-lien bonds pledged to the R. F. C.; that interest in default shares an equal priority with the principal debt to which it attaches; that the commission should disapprove the proposal to issue income bonds; and that the equity of the shareholders is of no value and that such shareholders should not participate in the distribution of new securities. The report recommends that the commission find that the probable maximum amount that reasonably may be expected to be available for a return upon the investment in the property will not exceed $182,380. Under the plan it proposes the reorganized company would issue immediately $471,500 of first mortgage 4 per cent 20-year bonds containing provisions for a 2 per cent sinking fund; $791,370 of second-mortgage 4 per cent 30-year bonds; $1,667,100 of 5 per cent noncumulative preferred stock; and 20,907 shares of no-par common stock. All the debtor's prior-lien and general mortgage bonds, both outstanding and pledged, would be surrendered and cancelled. Regarding the question of priority for the R. F. C. claim the report cites a decision of the Supreme Court of the United States denying a claimed priority for loans made by the government under the transportation act, 1920, in which the court held that such priority would have defeated the purpose of Congress, prevented the reestablishment of credit among bankers and investors, and seriously impaired the market value of outstanding railroad securities. "Economic conditions with respect to railroad credit similar to those related above prevailed at the time the Reconstruction Finance Corporation act was enacted," the bureau remarks. "It must be concluded that no priority was contemplated for loans made by the Reconstruction Finance Corporation since the Reconstruction Finance Corporation act expressly requires that such loans be adequately secured."

BANGOR & AROOSTOOK.—*Bonds.*—The Interstate Commerce Commission, Division 4, has authorized this company to sell $404,000 of consolidated refunding mortgage 4 per cent bonds at not less than 110 per cent of par, exclusive of accrued interest, in connection with a plan to refinance a similar amount of 5 per cent extension bonds maturing August 1, 1939.

CANADIAN NATIONAL.—*Bonds.*—An issue of $15,500,000 of 2¼ per cent seven-year bonds and $20,000,000 of 3 per cent fifteen-year bonds of this company, guaranteed by the Dominion government, will be offered this week—the seven-year bonds at 99.125 to yield 2.39 per cent and the fifteen-years at 99.5 to yield 3.04 per cent. The proceeds will be used to reimburse the government for advances, and to refund maturing obligations at lower rates of interest.

CANADIAN PACIFIC.—*Abandonment.*—A committee of the Dominion Cabinet has declined to interfere with a judgment of the Board of Railway Commissioners allowing the Canadian Pacific to abandon operation of the Shore Line subdivision of the New Brunswick Southern. In an order-in-council the Cabinet dismissed an appeal by the Province of New Brunswick from the Board's decision. The Cabinet found a case had not been made out for the continued operation of the 28.8 miles of railway, and as an alternative rail route is available between St. Stephen and Saint John by way of McAdam Junction it was felt little or no hardship would follow the closing of the mileage.

CARLTON & COAST.—*Notes.*—This company has applied to the Interstate Commerce Commission for authority to extend the maturity date of six notes totaling $535,800.24 from 1936 and 1937 to May 1, 1941.

CHESAPEAKE & OHIO.—*Equipment Trust Certificates.*—This company has applied to the Interstate Commerce Commission for authority to assume obligation and liability in respect of $4,000,000 of 2 per cent equipment trust certificates, dated March 1.

CHICAGO, BURLINGTON & QUINCY.—*Equipment Trust Certificates.*—Salomon Bros. & Hutzler, Dick & Merle-Smith and Stroud & Co. have offered $7,080,000 of 2 per cent equipment trust certificates of this company, maturing 1937-51, priced to yield 0.65 per cent to 2.55 per cent.

CHICAGO, HAVANA & WESTERN.—*Bonds.*—The Interstate Commerce Commission, Division 4, has authorized this company to extend to April 2, 1952, the date of maturity of $2,500,000 of first mortgage gold bonds, which matured December 1, 1926.

CHICAGO HEIGHTS TERMINAL TRANSFER.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue and deliver $562,000 of first mortgage 4 per cent bonds due in 1967 in exchange for and retirement of the same amount of outstanding first mortgage 6 per cent bonds maturing January 1, 1951.

CHICAGO, ROCK ISLAND & PACIFIC.—*Equipment Trust Certificates.*—The Interstate Commerce Commission, Division 4, has authorized the trustees to assume obligation and liability in respect of $2,400,000 of 3½ per cent equipment trust certificates maturing in 20 equal semi-annual installments of $120,000 on July 1 and January 1 from July 1, 1937 to January 1, 1947, inclusive. The issue has been sold to Lehman Brothers and associates at 100.539 and accrued dividends and will cost the trustees approximately 3.38 per cent.

CHICAGO, ROCK ISLAND & PACIFIC.—*Reorganization.*—A hearing on the reorganization plan of the Chicago, Rock Island & Pacific was continued to March 22 by Federal Judge Wilkerson, at Chicago, on January 20, to allow the Interstate Commerce Commission to make a ruling on the plan. Action on a motion of the Reconstruction Finance Corporation to dissolve an injunction restraining this corporation and the Continental Illinois National Bank & Trust Company from selling collateral securing loans to the Rock Island was also extended to March 22.

GREAT NORTHERN.—*Bonds.*—The Interstate Commerce Commission, Division 4, has authorized this company to issue $50,000,000 of general mortgage 3¾ per cent gold bonds, to be sold at 95½ and accrued interest, the proceeds, together with other funds, to be used to retire at maturity

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Superheater
LIFE EXTENSION

means SUPERHEATER INSURANCE.

With the revolution in locomotive performance which has taken place in the past five years, high mileage is accredited to locomotives in a very few years—half the time that it took five years before.

That means we can no longer gage superheater life by years. Today—it is mileage, plus much more severe operating conditions. When superheater maintenance is based on mileage and superheater life is extended by Elesco economical methods of REmanufacture . . . the cost of superheater maintenance is insignificant.

Elesco superheater unit life extension service is good insurance. It insures correct principles—heating surface, steam areas and design throughout the extended life of the units. Use it when your old superheater units need life extension.

"IT SAVES AND IT PAYS"

THE SUPERHEATER COMPANY

Representative of AMERICAN THROTTLE COMPANY, INC.

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Superheaters • Feed Water Heaters • American Throttles • Exhaust Steam Injectors
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A-1124

$20,185,000 of prior lien bonds and to redeem an additional $40,843,000 of such bonds outstanding.

GREAT NORTHERN-CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—*Co-ordination.*—These companies have applied to the Interstate Commerce Commission for authority to construct certain connecting tracks, to operate jointly over certain tracks, and to abandon certain parts of their lines. The Great Northern proposes to abandon 6.35 miles of track in Fergus county, Mont., and 7.3 miles in Teton county, Mont. The Milwaukee has asked for authority to abandon 0.97 miles between Hanover, Mont. and Spring Creek Bridge and 14.97 miles between West Great Falls, Mont., and Dracut.

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.—*Abandonment.*—The Interstate Commerce Commission, Division 4, has authorized the receiver of the Wisconsin Central to abandon a branch line extending from Luger Junction, Wis. to Lugerville, 5.23 miles and has also authorized the Minneapolis, St. Paul & Sault Ste. Marie to abandon operation on this line.

MISSOURI-KANSAS-TEXAS.—*Equipment Trust Certificates.*—This company has applied to the Interstate Commerce Commission for authority to assume obligation and liability in respect of $3,750,000 of 2½ per cent equipment trust certificates, series 1937.

MOBILE & OHIO.—*Abandonment.*—Examiner W. J. Schutrumpf of the Interstate Commerce Commission, in a proposed report, has recommended that the commission authorize this company to abandon its Dawes branch extending from Mann, Ala., to Dawes, 7.93 miles.

NORFOLK & WESTERN.—*Increases Dividend.*—Directors of this company have increased the quarterly dividend from $2 to $2.50 a share, thereby restoring the rate which prevailed in 1930 and 1931.

NEW YORK CENTRAL.—*Bonds.*—The board of directors of this road has authorized a special meeting of the stockholders, to be held on March 30, to consider the issue of not over $55,000,000 of bonds and to authorize the board to make such bonds convertible into capital stock of the company, the amount and the terms and provisions of such bonds to be determined later by the board subject to stockholders' authorization. Such convertible bonds, if authorized and issued, will be offered to the stockholders for subscription. The purpose of the proposed financing is to put the company in a position to call for redemption its outstanding issue of ten-year 6 per cent convertible secured bonds, due May 10, 1944. Up to and including May 10, 1937, these convertible bonds are callable at 105, thereafter to and including May 10, 1940, at 102. The conversion price at which the outstanding convertible bonds are convertible into capital stock of the company also changes on May 11, 1937. Prior to that date the conversion price is $40 per share, or at the rate of 25 shares of stock per $1,000 of bonds, and on and after that date the conversion price is $50 per share, or at the rate of 20 shares of stock per $1,000 of bonds, in each case with adjustment for accrued interest. Such right of conversion in case the outstanding convertible bonds are called for redemption continues to and including the redemption date.

NORFOLK SOUTHERN.—*P. W. A. Loan.*—The Interstate Commerce Commission, Division 4, has approved the acquisition by the receivers of 25 40-ton 40-foot steel-sheathed automobile cars, to be financed to the extent of $60,000 through the aid of the Public Works Administration, in addition to 500 box cars previously approved.

PENNSYLVANIA.—*Bonds.*—Funds required for this road's proposed electrification to Harrisburg, Pa., and other capital expenditures will be provided through an offer to the stockholders at par of $52,670,700, of 15-year 3¼ per cent convertible debenture bonds, convertible at the option of the holders into capital stock of the company at par ($50 per share). Stockholders of record at the close of business February 6, will be entitled to subscribe for the new bonds on the basis of 8 per cent of the par value of their holdings. The debenture bonds will be issued in denominations of $100, $500 and $1000. The entire issue has been written by Kuhn, Loeb & Company of New York City, so that any portion of the issue not subscribed to by the stockholders will be purchased by the bankers.

READER.—*Reorganization.*—This company has filed a plan of reorganization with the United States district court for the western district of Arkansas and with the Interstate Commerce Commission in Washington, D. C.

RUTLAND, TOLUCA & NORTHERN.—*Abandonment.*—Stockholders of this company have applied to the Interstate Commerce Commission for authority to abandon the entire line, from Granville, Ill., to Toluca, 20.88 miles.

SEABOARD AIR LINE.—*Equipment Trust Certificates.*—The Interstate Commerce Commission, Division 4, has authorized the receivers to assume obligation and liability in respect of $2,500,000 of 3½ per cent equipment trust certificates, series FF, maturing in 20 equal semi-annual installments of $125,000 on February 1 and August 1 from 1937 to 1947 inclusive. The issue has been sold to the Prudential Insurance Company of America at 97.72 and accrued dividends and will cost the receivers approximately 4 per cent.

TENNESSEE.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue $860,000 of 15-year first mortgage bonds, dated February 2, 1937.

VIRGINIAN.—*Mellon Interests Share in Ownership.*—A group headed by the Koppers Company, the First Boston Corporation and the Eastern Gas & Fuel Associates, Inc., has purchased 236,000 shares (approximately 40 per cent of the total) from several estates representing the heirs of the late H. H. Rogers.

WABASH.—*Abandonment.*—The Interstate Commerce Commission, Division 4, has authorized this company to abandon a part of its Bement branch line extending from Stewardson, Ill., to Effingham, 13 miles.

WESTERN PACIFIC.—*Equipment Trust Certificates.*—The Interstate Commerce Commission, Division 4, has authorized the trustees of this company to assume liability for $2,320,000 of 3 per cent equipment trust certificates, series 1937, maturing 1938-52, to be sold to the Prudential Insurance Company at 100.342677, making the interest cost to the railroad approximately 2.97 per cent.

Sleepy Truck Driver a Menace to Motorists

Recently a truck containing nine tons of lumber was stopped by running into one of these dividers [traffic cone] when, according to the driver's statement, he must have been asleep. Next to drunken drivers, the worst thing the careful motorist has to contend with on the highways is the sleepy driver. Usually these men are not to blame because they work long hours rather than jeopardize their jobs.

Next to a state driver's license law, the most important need to make Missouri highways and city streets safe is a law regulating hours of truck driving as rigorously as those of locomotive engineers. This nine tons of lumber probably would have been on a railroad car if railroads could overwork their men the way some trucking companies do and thereby reduce rates accordingly. It is unfair competition to make railroads lose business which properly belongs to them by failing to regulate the long hours of trucking company employees.

There is not only danger but inconvenience from these mammoth trucks that crawl up hills at ten miles an hour while all other traffic either lags behind or takes a chance on life and limb by trying to pass on hills. The highways were built by public funds for the use of all the people.

This problem must be met eventually. Perhaps a few incidents such as this sleepy driver crash will speed that day.

—From the St. Louis (Mo.) Star-Times

Average Prices of Stocks and Bonds

	Jan. 24	Last week	Last year
Average price of 20 representative railway stocks..	53.56	55.47	46.14
Average price of 20 representative railway bonds..	83.70	85.13	79.63

Dividends Declared

Louisville & Nashville.—$2.50, payable February 27 to holders of record February 1.

Norfolk & Western.—Common, $2.50, quarterly, payable March 19 to holders of record February 27.

Reading.—First Preferred, 50c, quarterly, payable March 11 to holders of record February 18.

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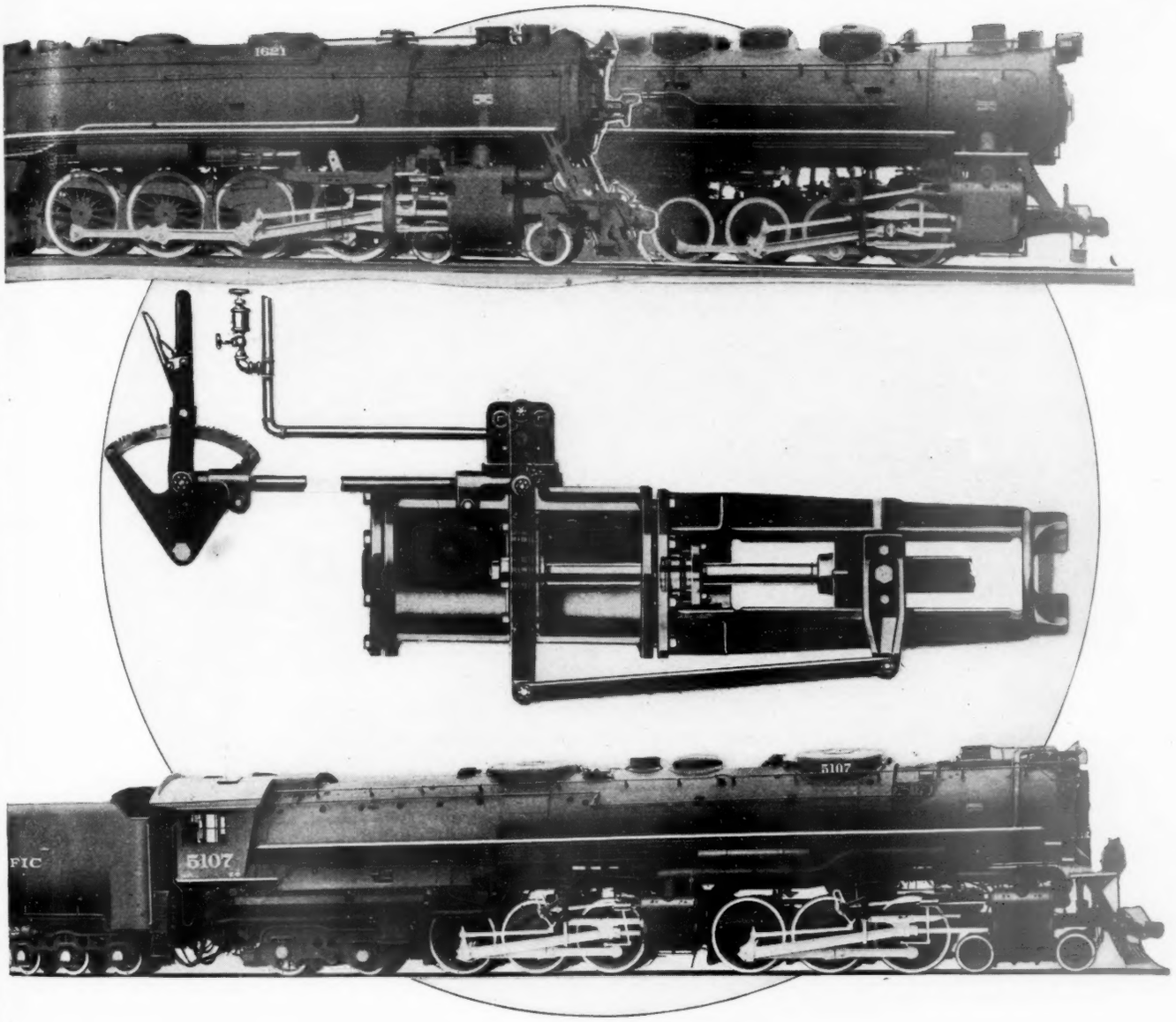

Alco Reverse Gears

adapted for all classes of power

THE Alco Type "G" Gear with crosshead and guides is simple, rugged, easily maintained and reasonably priced . . . The all-reliable packless flat rotary valve assures sensitivity—accuracy and easy operation. The hardened steel quadrant with 82 notches permits fine adjustments in cut-off . . . Thousands in switching—fast freight and high speed passenger service assure economical locomotive performance.

Alco

AMERICAN LOCOMOTIVE COMPANY

30 CHURCH STREET, NEW YORK CITY

Railway Officers

FINANCIAL, LEGAL AND ACCOUNTING

Edward Gluckson has been appointed general auditor of the Pittsburgh & West Virginia, with headquarters at Pittsburgh, Pa., succeeding **W. C. Connor,** deceased.

OPERATING

C. J. McKeough, who has retired as superintendent of the Stratford division of the Canadian National at Stratford, Ont., as noted in the *Railway Age* of January 9, was born on October 16, 1871, at St. Marys, Ont. He entered railroad service on August 15, 1892, as brakeman for the Grand Trunk (Canadian National) at Stratford. On December 1, 1902, he became conductor at Stratford; on January 22, 1913, trainmaster; and on April 30, 1923, assistant superintendent in that city. Mr. McKeough was appointed superintendent of terminals at Black Rock, N. Y., on November 25, 1925, and became superintendent of the Stratford division on September 1, 1932, from which position he retired on January 1.

E. J. Flanagan, superintendent of the Railway Express Agency, at Grand Rapids, Mich., has been appointed superintendent of organization, with headquarters at Chicago, to succeed **J. F. Glover,** whose appointment as assistant to the vice-president in charge of operation in the Central departments, with headquarters at Chicago, was reported in the *Railway Age* of December 19, 1936. **Patrick Cummings,** assistant general agent at Chicago, has been promoted to superintendent of organization, with the same headquarters, to succeed **Roger Park,** who has been appointed superintendent at Grand Rapids, to succeed Mr. Flanagan. **C. J. Lederer,** chief clerk in the transportation department at Chicago, has been promoted to superintendent of transportation, with the same headquarters, to succeed **George Ziegler,** deceased.

W. S. Taylor, superintendent of the Cincinnati division of the Chesapeake & Ohio, has been appointed assistant to general superintendent, with headquarters at Huntington, W. Va., succeeding **E. I. Ford,** deceased. **H. A. Iuler,** superintendent of the Ashland division, has been transferred in the same capacity to the Cincinnati division, with headquarters at Covington, Ky., succeeding Mr. Taylor. **H. Kindt,** trainmaster of the Coal River sub-division at St. Albans, W. Va., has been appointed superintendent of the Ashland division, with headquarters at Ashland, Ky., succeeding Mr. Iuler. **M. I. Dunn,** trainmaster of the Handley Coal sub-division at Handley, W. Va., has been transferred in the same capacity to the Coal River sub-division, with headquarters at St. Albans, W. Va., succeeding Mr. Kindt. **R. N. Lynch,** assistant trainmaster at Holden, W. Va., has been appointed trainmaster of the Handley Coal sub-division, with headquarters at Handley, W. Va., succeeding Mr. Dunn.

Alfred C. Kohlhase, trainmaster of the Rocky Mountain division of the Chicago, Milwaukee, St. Paul & Pacific, whose appointment as superintendent of the Trans-Missouri division with headquarters at Miles City, Mont., was reported in the *Railway Age* of January 23, has been in the service of this company for 27 years. He was born on September 12, 1887, at Sleepy Eye, Minn., and first entered railway service in June, 1902, as a caller and messenger on the Chicago & North Western at Sleepy Eye. In September of the following year Mr. Kohlhase entered the service of the Western Union, serving as manager and operator in Minnesota and the Dakotas. In July, 1904, he returned to the North Western as an operator, again going with the Western Union in the fall of 1907, this time as manager and operator in Minnesota and Michigan. In September, 1910, Mr. Kohlhase went with the Chicago, Milwaukee, St. Paul & Pacific as a relay operator on the Musselshell division, being advanced to train-dispatcher on that division in May, 1913. In July, 1915, he was further advanced to chief dispatcher on the same division and in June, 1926, he was promoted to trainmaster on the Rocky Mountain division. He was holding the latter position at the time of his recent appointment as superintendent of the Trans-Missouri division, effective January 15.

Roy A. McCandless, superintendent of the Dakota division of the Great Northern, with headquarters at Grand Forks, N. D., has been promoted to general manager of the Western lines with headquarters at Seattle, Wash., to succeed **J. H. O'Neill,** deceased. **Peter J. Coliton,** trainmaster on the Willmar division with headquarters at Willmar, Minn., has been promoted to superintendent of the Dakota division at Grand Forks, to succeed Mr. McCandless.

Roy A. McCandless

Mr. McCandless was born on June 5, 1879, at Wilton Junction, Iowa, and entered railway service with the Great Northern at the age of 16 as a messenger in the offices at St. Paul, Minn., later serving as a stenographer and bookkeeper. In 1902, Mr. McCandless was advanced to chief clerk in the superintendent's office on the Willmar division, later being transferred to Larimore, N. D. In 1903, he was advanced to assistant superintendent of the Dakota division and in the following year he was transferred to the general manager's office at St. Paul. In 1907, Mr. McCandless became assistant superintendent of the Minot division, where he was advanced to superintendent five years later. Subsequently he was transferred successively to the Butte division, to the Grand Forks division and thence back to the Minot division. On February 1, 1930, Mr. McCandless was promoted to general superintendent of the Central divisions with headquarters at Great Falls, Mont., returning to Grand Forks as superintendent of the Dakota division on October 1, 1931, where he remained until his recent appointment as general manager of the Western lines.

P. H. Nee, who has been appointed general superintendent on the Chicago, Milwaukee, St. Paul & Pacific at Milwaukee, Wis., as reported in the *Railway Age* of January 23, has been connected with the Milwaukee for 46 years. He was born on February 20, 1875, at Norwood, Minn., and entered railway service with the Milwaukee in July, 1891, as a telegraph operator, later serving as a station agent. In November, 1901, he was advanced to train dispatcher and in October, 1908, he was made chief dispatcher, being further promoted to trainmaster in April, 1913. In 1918, Mr. Nee was promoted to superintendent of the Wisconsin Valley division, and has subsequently served in the same capacity on the Hastings and Dakota division, the consolidated Hastings and Dakota and Aberdeen divisions and the Trans-Missouri division, being located on the latter division, with headquarters at Miles City, Mont., at the time of his recent appointment as general superintendent at Milwaukee, where he will have jurisdiction of all the railroad's mileage in Wisconsin and the Michigan upper peninsula.

P. H. Nee

ENGINEERING AND SIGNALING

H. A. Aalberg, division engineer of the McCook division of the Chicago, Burlington & Quincy with headquarters at Denver, Colo., has been promoted to assistant chief engineer of the Lines West of the

Continued on next left-hand page

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Missouri river, with headquarters at Lincoln, Neb., to succeed **Frank T. Darrow,** whose appointment as chief engineer of the system at Chicago was reported in the *Railway Age* of January 23.

MECHANICAL

J. P. Becker, general locomotive inspector of the Chicago Great Western, with headquarters at Oelwein, Iowa, has been appointed general locomotive and boiler inspector with the same headquarters.

H. W. Sharpe, who has retired as superintendent of motive power and car equipment of the Quebec district of the Canadian National, as noted in the *Railway Age* of January 9, was born on December 6, 1869, at Campbellton, N. B. He entered railroad service in September, 1883, as messenger for the Intercolonial Railway (now Canadian National) at Campbellton. He became a helper in the mechanical shops of the Intercolonial at Campbellton in August, 1884; locomotive fireman in that city in November, 1886; and locomotive engineer at Levis, Que., in February, 1890. Mr. Sharpe served as division master mechanic for the Intercolonial successively at Riviere du Loup, Que., and Levis from November, 1912, to December, 1918, when he became district master mechanic for the Canadian National at Quebec, Que. On March 1, 1923, he was appointed superintendent of motive power and car equipment at Quebec, from which position he retired on January 1.

Herbert W. Faus, who has been appointed engineer of motive power of the New York Central System, with headquarters at New York, as reported in the *Railway Age* of January 23, was born on July 28, 1886, at Munsey Valley, Pa. He was graduated from Syracuse University in 1910 with a degree in civil engineering. Mr. Faus began his business career in 1901 in the office of the Lehigh Valley Coal Company at Snow Shoe, Pa., serving with this firm until 1904, and during the summer of 1905 he worked as colliery clerk with the Pennsylvania Coal & Coke Company at Hastings, Pa. Mr. Faus entered railroad service in 1910 and served until 1912 as rodman, leveler, transitman, bridge inspector and bridge engineer with the Canadian Northern (now C. N. R.) in Ontario and British Columbia. From 1912 to 1915 he was resident engineer of the Kettle Valley (C. P. R. system) at Hope, B. C., and Penticton, B. C., and from 1915 to 1917 he was special engineer of the New York Central Lines at New York. He served as office engineer, plant engineer, resident engineer and chief administrative officer, successively, for the U. S. Shipping Board Emergency Fleet Corporation, Bristol, Pa., from 1917 to 1923. From 1923 to 1926 Mr. Faus served as special engineer and engineer materials and equipment tests with the New York Central and in 1926 he was appointed engineer of tests, the position he held until his recent appointment.

H. W. Faus

TRAFFIC

Joseph P. McDonald, who has been appointed coal freight agent of the Lehigh Valley, with headquarters at New York, as reported in the *Railway Age* of January 23, was born on September 8, 1890, at Wilkes-Barre, Pa. He was educated in the Parochial schools and Coughlin High School, Wilkes-Barre, and entered railroad service on October 29, 1906, as messenger boy in the local freight office of the Lehigh Valley at Wilkes-Barre, subsequently serving in various clerical positions. Mr. McDonald was appointed traveling weight agreement inspector in the auditing department at Philadelphia, Pa., on November 1, 1912. After military service from June 5, 1918, to January, 1919, he re-entered the auditing department of the Lehigh Valley as traveling auditor on the Wyoming and Mahanoy and Hazleton divisions. On January 1, 1921, Mr. McDonald joined the traffic department as chief clerk to assistant freight traffic manager and was appointed commercial agent in the traffic department at New York on February 1, 1922, later being transferred in a similar capacity to Jersey City, N. J., Hoboken and Bayonne. He was promoted to division freight agent at Hazleton, Pa., on April 1, 1924, and on May 1, 1926, was transferred in the same capacity to Wilkes-Barre. Mr. McDonald was appointed division freight and passenger agent at Wilkes-Barre on March 15, 1932, which position he held until his appointment as coal freight agent, effective January 15.

J. P. McDonald

J. R. Bradley, Jr., traveling passenger agent of the Seaboard Air Line, with headquarters at New York, has been appointed division passenger agent with headquarters at Jacksonville, Fla., succeeding **W. J. Kenealy,** who has been appointed general passenger agent at Jacksonville, as reported in the *Railway Age* of January 2.

OBITUARY

Ernest Alexander, who retired on December 31, 1935, as secretary of the Canadian Pacific, with headquarters at Montreal, Que., died at his home in Montreal on January 12. He was 75 years old.

William C. Connor, general auditor of the Pittsburgh & West Virginia, with headquarters at Pittsburgh, Pa., died suddenly on December 31 at a hospital in that city. Mr. Connor was 49 years of age.

C. E. McPherson, who retired on May 1, 1930, as assistant passenger traffic manager of the Canadian Pacific's western lines, with headquarters at Winnipeg, Man., died from a heart attack at his home in that city on January 11. He was 74 years old.

C. G. Fluhr, superintendent of the Los Angeles division of the Atchison, Topeka & Santa Fe with headquarters at San Bernardino, Cal., died on January 20 in the Santa Fe hospital at Los Angeles of a throat ailment. Mr. Fluhr had been ill since last October, when he was forced to take a leave of absence. He was 65 years old and had been in the service of the Santa Fe since February, 1897. Subsequently he was promoted to superintendent, serving successively at Needles, Cal., and Fresno until February 1, 1934, when he was transferred to the Los Angeles division.

Willard Kells, formerly general superintendent motive power of the Atlantic Coast Line, died suddenly of heart disease at his home in Wilmington, N. C., on January 18. Mr. Kells was born in Dennison, Ohio, on February 4, 1868. He was educated in the public schools of Cleveland, Ohio, and on March 1, 1888, entered railroad service as a machinist apprentice on the Erie at Susquehanna, Pa. After serving his full apprenticeship he rose through various positions to become master mechanic at Cleveland, Ohio; Lima; Huntington, Ind.; and Meadville, Pa. For a short time he was assistant master car builder of the Union Tank Line at New York, and from April, 1899, to December, 1910, was master mechanic of the Lehigh Valley successively at Auburn, N. C.; Sayre, Pa., and Buffalo, N. Y. In December, 1910, he became assistant to general superintendent motive power of the Atlantic Coast Line at Wilmington, N. C. From 1911 to 1918 he was assistant general superintendent motive power, and from 1918 to 1920 general superintendent motive power. Because of failing health, he relinquished many of his duties and was superintendent motive power until his resignation in October, 1923.

Table of Freight Operating Statistics appears on next left-hand page

For Every Pneumatic Need

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WESTINGHOUSE AIR COMPRESSORS

Freight Operating Statistics of Large Steam Railways—Selected Items for the Month of November,

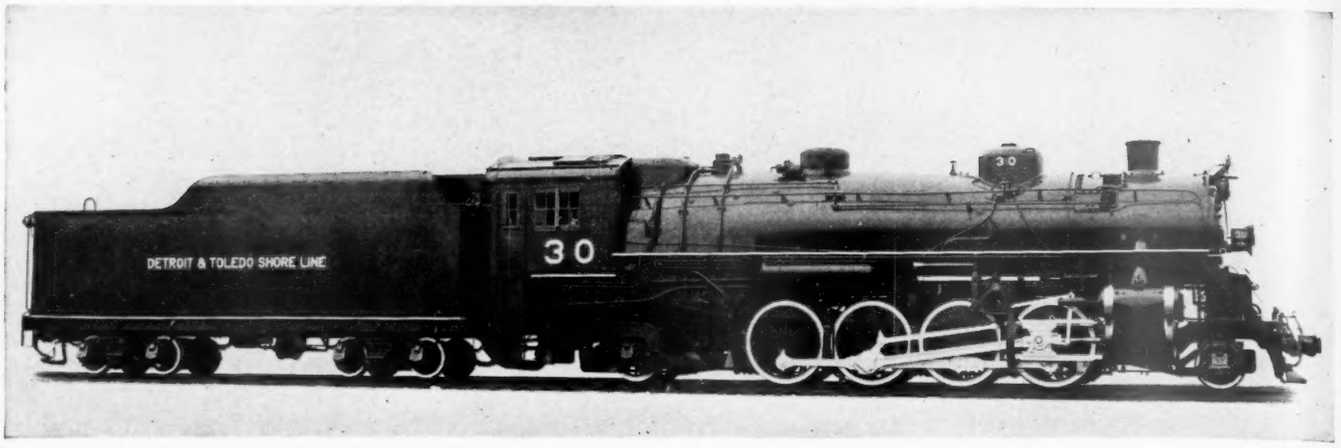
Region, road, and year	Miles of road operated	Train-miles	Locomotive-miles: Principal and helper	Locomotive-miles: Light	Car-miles: Loaded (*thousands*)	Car-miles: Per cent loaded	Ton-miles (*thousands*): Gross, excluding locomotives and tenders	Ton-miles (*thousands*): Net, revenue and non-revenue	Number of road locomotives on line: Serviceable: Not stored	Serviceable: Stored	Unserviceable	Per cent unserviceable
New England Region:												
Boston & Albany	1936	373	139,311	143,540	9,489	3,228	68.7	171,483	60,891	59	8	25	27.2
	1935	373	122,189	128,146	9,931	3,041	68.7	156,614	53,664	51	4	37	40.2
Boston & Maine	1936	1,951	271,410	305,902	27,644	10,030	71.0	548,405	210,788	124	..	142	53.4
	1935	1,971	253,571	282,658	26,371	8,941	68.9	484,504	176,202	118	..	174	59.6
N. Y., New Hav. & Hartf.	1936	2,016	345,223	427,086	23,687	12,187	69.0	652,308	250,523	176	12	96	31.4
	1935	2,049	316,986	387,902	18,928	10,668	68.0	565,794	209,824	180	6	115	38.2
Great Lakes Region:												
Delaware & Hudson	1936	831	229,552	313,198	36,774	8,400	68.0	522,574	259,146	101	120	41	15.6
	1935	835	195,273	264,598	31,813	6,962	66.9	423,620	201,394	96	148	29	10.6
Del., Lack. & Western	1936	983	364,066	406,850	55,243	12,770	71.0	725,386	294,565	143	2	92	38.8
	1935	992	331,232	364,762	46,882	10,898	67.9	612,664	232,381	115	33	97	39.6
Erie (incl. Chi. & Erie)	1936	2,298	722,872	767,577	40,414	32,044	66.8	1,917,565	745,619	218	31	224	47.4
	1935	2,298	681,090	715,260	40,271	27,834	63.9	1,706,274	631,452	193	63	218	46.0
Grand Trunk Western	1936	1,027	267,994	270,992	3,253	7,273	64.8	434,109	157,268	81	..	58	41.7
	1935	1,007	238,296	241,306	2,737	6,647	62.2	398,201	137,128	76	..	64	45.7
Lehigh Valley	1936	1,305	371,194	397,597	48,612	13,585	68.7	824,843	357,658	150	6	126	44.7
	1935	1,318	366,644	387,683	38,618	11,676	67.1	700,718	281,241	122	2	161	56.5
New York Central	1936	10,793	2,866,017	3,032,845	194,687	97,273	60.4	6,359,394	2,682,540	951	80	483	31.9
	1935	10,885	2,572,138	2,700,418	156,453	84,621	59.4	5,479,678	2,241,454	790	79	665	43.4
N. Y., Chi. & St. Louis	1936	1,672	499,691	504,315	7,633	17,462	64.8	1,030,037	403,977	157	11	25	13.0
	1935	1,661	430,544	433,418	6,141	14,348	63.6	857,042	321,479	129	33	29	15.2
Pere Marquette	1936	2,081	396,121	410,598	5,357	10,612	62.1	674,637	255,908	126	..	27	17.6
	1935	2,090	366,625	380,672	6,064	9,187	60.0	591,693	216,909	114	..	40	26.0
Pittsburgh & Lake Erie	1936	234	94,649	97,080	.....	3,493	59.0	300,986	168,023	33	12	22	32.8
	1935	234	67,956	70,306	88	2,748	60.7	231,224	130,719	26	11	34	47.9
Wabash	1936	2,434	606,352	617,323	13,393	18,623	67.8	1,063,305	388,138	133	35	135	44.6
	1935	2,435	550,569	559,506	11,420	16,927	63.9	981,749	330,807	127	29	164	51.3
Central Eastern Region:												
Baltimore & Ohio	1936	6,366	1,577,100	1,930,128	201,769	47,944	62.6	3,324,833	1,540,181	670	54	567	43.9
	1935	6,325	1,341,399	1,644,964	163,705	39,618	61.0	2,721,423	1,208,281	598	60	656	49.9
Central of New Jersey	1936	681	154,553	173,521	33,249	5,121	62.4	347,993	167,279	60	11	76	51.7
	1935	684	137,321	155,836	28,640	4,464	61.8	300,591	140,062	55	4	96	61.9
Chicago & Eastern Illinois	1936	931	181,925	182,421	3,005	5,072	66.0	326,649	146,853	58	2	47	43.9
	1935	939	167,575	168,052	2,718	3,943	63.6	253,717	111,747	46	5	60	54.1
Elgin, Joliet & Eastern	1936	434	103,750	104,969	1,847	2,649	59.9	210,437	107,368	59	..	26	30.6
	1935	434	86,765	88,658	1,735	2,136	60.0	165,730	82,104	50	..	37	42.5
Long Island	1936	393	31,748	32,762	16,589	308	52.2	23,593	9,034	39	..	14	26.4
	1935	393	28,468	29,275	14,379	261	50.5	20,032	7,110	27	4	17	35.4
Pennsylvania System	1936	10,034	3,137,815	3,610,052	402,121	111,219	62.4	7,629,960	3,476,489	1,469	186	683	29.2
	1935	10,009	2,643,702	2,982,237	311,508	91,828	62.8	6,155,976	2,737,339	1,238	162	1,041	42.6
Reading	1936	1,449	437,562	474,964	54,361	12,519	63.8	897,835	443,603	208	44	88	25.9
	1935	1,452	363,362	393,222	46,148	10,418	61.7	736,914	348,550	176	85	95	26.7
Pocahontas Region:												
Chesapeake & Ohio	1936	3,050	936,895	994,882	48,232	42,759	54.5	3,704,473	2,006,653	406	24	119	21.7
	1935	3,046	841,168	883,676	36,514	37,371	54.6	3,216,063	1,736,450	391	57	98	17.9
Norfolk & Western	1936	2,183	702,843	745,905	37,948	29,271	57.9	2,506,724	1,342,653	269	46	47	13.0
	1935	2,145	607,785	640,305	29,187	24,967	58.5	2,060,686	1,078,138	246	73	57	15.2
Southern Region:												
Atlantic Coast Line	1936	5,079	605,620	607,292	8,228	13,426	65.1	708,874	249,791	228	36	106	28.6
	1935	5,146	487,463	488,452	6,286	9,908	62.7	524,924	178,947	236	57	125	29.9
Central of Georgia	1936	1,886	254,944	255,848	3,826	5,680	72.9	309,740	125,282	96	..	27	22.0
	1935	1,886	223,265	224,021	3,528	4,932	69.2	265,380	100,741	105	..	37	26.1
Illinois Central (incl. Y. & M. V.)	1936	6,556	1,689,183	1,698,279	31,846	41,247	63.2	2,683,813	1,130,053	686	12	188	21.2
	1935	6,587	1,420,558	1,429,350	27,254	33,865	60.7	2,219,898	905,292	604	25	225	26.3
Louisville & Nashville	1936	4,942	1,238,042	1,359,369	35,064	29,136	58.4	2,123,841	1,024,975	374	5	187	33.0
	1935	5,037	1,026,188	1,107,592	29,170	23,670	59.1	1,685,721	811,351	318	7	253	43.8
Seaboard Air Line	1936	4,295	503,022	528,609	4,747	13,565	67.7	777,881	293,346	230	6	95	28.7
	1935	4,295	436,440	446,972	4,598	10,873	67.1	625,026	236,620	223	9	115	33.1
Southern	1936	6,596	1,320,381	1,340,139	21,508	29,783	66.3	1,706,078	685,257	487	23	276	35.1
	1935	6,599	1,156,589	1,173,198	20,451	26,465	66.4	1,462,142	560,018	417	51	345	42.4
Northwestern Region:												
Chi. & North Western	1936	8,355	1,011,453	1,051,422	31,532	27,387	60.5	1,758,798	643,595	334	117	243	35.0
	1935	8,428	918,309	962,951	27,573	23,706	60.9	1,486,834	521,532	422	123	230	27.7
Chicago Great Western	1936	1,458	307,398	310,161	13,542	8,829	60.0	552,992	194,509	66	1	23	25.6
	1935	1,458	223,923	224,800	6,438	6,613	60.4	411,059	146,141	62	6	26	27.7
Chi., Milw., St. P. & Pac.	1936	11,107	1,389,667	1,496,126	68,822	37,798	61.8	2,403,980	968,993	453	99	128	18.8
	1935	11,115	1,262,861	1,335,401	55,245	32,776	59.3	2,106,769	829,473	411	112	147	21.9
Chi., St. P., Minneap. & Om.	1936	1,637	220,782	232,257	11,225	4,997	63.1	314,144	127,060	86	34	25	17.2
	1935	1,641	205,300	213,126	9,750	4,457	65.3	272,488	115,817	68	46	31	21.4
Great Northern	1936	7,997	846,361	848,085	33,284	28,185	64.2	1,821,754	795,669	391	24	144	25.8
	1935	8,031	762,959	770,091	24,143	23,702	64.5	1,491,357	635,583	400	45	159	26.3
Minneap., St. P. & S. St. M.	1936	4,273	376,530	387,848	5,637	8,737	67.3	408,760	210,451	117	..	32	21.5
	1935	4,273	350,518	354,967	3,692	7,632	68.6	430,821	185,221	134	3	32	18.9
Northern Pacific	1936	6,429	727,597	803,824	48,658	23,008	67.0	1,378,979	576,137	370	4	70	15.8
	1935	6,421	635,142	691,589	46,517	19,145	69.4	1,127,058	487,931	345	12	94	20.8
Central Western Region:												
Alton	1936	912	205,990	215,094	2,744	4,757	64.2	301,184	118,512	75	..	25	25.0
	1935	928	187,795	194,787	2,148	4,066	60.6	263,990	98,977	66	4	32	31.4
Atch., Top. & S. Fe (incl. G.C. & S.F. & P. & S.F.)	1936	13,227	1,999,631	2,166,187	108,995	58,363	63.0	3,631,441	1,220,760	616	50	309	31.7
	1935	13,260	1,784,751	1,919,319	84,746	48,934	60.9	3,051,392	989,840	565	81	350	35.1
Chicago, Burl. & Quincy	1936	8,899	1,426,074	1,488,257	62,359	37,520	62.5	2,292,911	966,068	455	..	89	16.4
	1935	8,969	1,336,069	1,395,231	47,752	34,173	59.1	2,134,175	893,148	449	2	91	16.8
Chi., Rock I. & Pac. (incl. Chi., Rock I. & Gulf)	1936	8,130	1,159,383	1,183,965	6,818	26,507	63.6	1,600,201	612,167	386	29	257	38.2
	1935	8,273	1,034,979	1,050,627	3,654	22,338	62.0	1,357,930	498,345	355	20	358	48.8
Denv. & Rio Gr. Western	1936	2,576	384,559	425,390	48,104	8,912	63.2	560,193	221,857	186	8	12	5.8
	1935	2,584	316,577	352,843	43,295	8,044	63.6	488,701	196,812	167	5	39	18.5
Southern Pac.—Pac. Lines	1936	8,614	1,686,815	1,869,159	239,151	57,615	64.2	3,512,303	1,225,341	553	76	170	21.3
	1935	8,599	1,229,235	1,333,160	144,569	39,742	63.1	2,439,667	819,012	420	99	265	33.8
Union Pacific	1936	9,918	2,150,961	2,224,430	114,152	68,126	64.8	4,112,733	1,457,822	662	47	171	19.4
	1935	9,825	1,889,031	1,973,901	128,655	57,151	60.9	3,551,932	1,230,293	608	73	207	23.3
Southwestern Region:												
Mo.-Kans.-Texas Lines	1936	3,282	415,328	421,209	6,936	11,017	60.9	686,686	244,988	98	29	78	38.0
	1935	3,282	369,063	373,545	6,078	9,943	60.1	613,817	210,624	90	28	76	39.2
Missouri Pacific	1936	7,191	1,294,356	1,331,221	29,677	36,180	61.8	2,311,120	884,749	337	66	127	24.0
	1935	7,202	1,125,171	1,161,192	25,655	29,800	62.3	1,879,238	720,210	271	118	158	28.9
St. Louis-San Francisco	1936	4,888	786,888	793,650	10,809	16,250	61.8	1,028,035	412,231	292	52	64	15.7
	1935	4,888	657,630	662,606	8,614	13,688	61.6	844,578	326,964	256	110	66	15.3
St. Louis Southw. Lines	1936	1,733	274,046	275,633	3,560	7,308	68.3	413,249	158,803	103	7	7	6.0
	1935	1,767	235,731	244,475	3,176	5,968	67.7	331,709	119,623	99	11	8	6.8
Texas & New Orleans	1936	4,415	622,706	625,775	7,058	15,171	66.8	919,286	360,063	215	30	51	17.2
	1935	4,415	512,011	512,034	8,745	11,445	64.2	695,775	256,172	194	41	59	20.1
Texas & Pacific	1936	1,944	331,527	331,527	2,338	9,349	63.5	574,173	206,817	72	47	93	43.9
	1935	1,945	239,069	239,069	1,927	7,188	63.6	432,554	151,910	74	61	85	38.6

NOTE:—Effective with carrier reports for the month of January, 1936, the rules relative to operating statistics of large steam railways were revised with the following effect on this statement: Miles of road operated, number of locomotives on line, and number of freight cars on line were changed from averages for the month to actual figures as of the close of the month. Freight train and locomotive-miles, which formerly applied only to freight trains and the *freight proportion of mixed trains*, based on car-miles, were changed to apply to freight trains and all mixed trains handling more freight-train cars than passenger-train cars. Carriers were not required to rework 1935 figures according to the revised rules, but they have in some cases supplied considerable comparable data. In other cases, the figures shown in this statement for last year were restated by the carriers from last year's report, or inserted from such reports by the Bureau of Statistics.

1936, Compared with November, 1935, for Roads with Annual Operating Revenues Above $25,000,000

Region, road, and year	Number of freight cars on line: Home	Foreign	Total	Per cent unserviceable	Gross ton-miles per train-hour, excluding locomotives and tenders	Gross ton-miles per train-mile, excluding locomotives and tenders	Net ton-miles per train-mile	Net ton-miles per loaded car-mile	Net ton-miles per car-day	Car-miles per car-day	Net ton-miles per mile of road per day	Pounds of coal per 1,000 gross ton-miles, including locomotives and tenders	Locomotive-miles per locomotive-day
New England Region:													
Boston & Albany.....1936	2,305	4,306	6,611	24.7	20,971	1,236	439	18.9	304	23.5	5,443	169	55.4
1935	2,486	4,563	7,049	21.1	21,752	1,289	442	17.6	247	20.3	4,793	158	50.0
Boston & Maine.....1936	7,083	9,737	16,820	13.8	27,262	2,029	780	21.0	432	28.9	3,602	107	41.5
1935	8,318	7,577	15,895	14.9	26,181	1,919	698	19.7	368	27.1	2,981	106	35.3
N. Y., New Hav. & Hartf..1936	9,734	13,612	23,346	14.8	27,096	1,926	740	20.6	370	26.1	4,143	108	53.3
1935	13,245	11,583	24,828	16.0	25,651	1,821	675	19.7	282	21.1	3,413	107	45.1
Great Lakes Region:													
Delaware & Hudson.....1936	6,988	4,052	11,040	4.2	31,511	2,290	1,135	30.9	767	36.5	10,399	110	43.7
1935	10,557	2,912	13,469	3.6	30,580	2,183	1,038	28.9	493	25.4	8,037	111	36.2
Del., Lack. & Western.....1936	12,498	7,131	19,629	18.1	33,397	2,017	819	23.1	500	30.5	9,992	134	63.6
1935	15,542	5,681	21,223	13.7	32,229	1,872	710	21.3	367	25.3	7,810	135	55.8
Erie (incl. Chi. & Erie)...1936	16,305	23,154	39,459	2.8	43,883	2,672	1,039	23.3	659	42.4	10,818	103	56.9
1935	21,161	13,119	34,280	5.5	42,898	2,524	934	22.7	603	41.6	9,159	98	53.1
Grand Trunk Western.....1936	4,669	9,541	14,210	14.5	29,809	1,639	594	21.6	383	27.3	5,104	99	66.2
1935	4,511	7,870	12,381	16.5	26,151	1,683	580	20.6	358	27.8	4,541	103	58.1
Lehigh Valley 1936	10,066	11,332	21,398	6.6	38,781	2,254	977	26.3	561	31.0	9,134	132	52.9
1935	12,247	7,993	20,240	6.6	36,804	1,953	784	24.1	468	29.0	7,113	129	49.5
New York Central.....1936	95,917	72,734	168,651	16.9	36,046	2,241	945	27.6	529	31.8	8,285	110	70.7
1935	119,171	69,412	188,583	20.7	35,813	2,154	881	26.5	396	25.2	6,864	106	61.8
N. Y., Chi. & St. Louis...1936	5,562	8,522	14,084	2.8	36,594	2,063	809	23.1	958	63.9	8,055	98	88.6
1935	7,396	7,252	14,648	5.6	35,198	1,992	747	22.4	728	51.1	6,453	95	76.7
Pere Marquette 1936	7,855	9,417	17,272	2.8	26,990	1,705	647	24.1	505	33.7	4,098	101	91.8
1935	9,839	6,927	16,766	4.7	25,917	1,614	592	23.6	420	29.6	3,460	100	83.7
Pittsburgh & Lake Erie..1936	11,238	11,841	23,079	33.1	42,796	3,188	1,780	48.1	234	8.2	23,952	91	49.0
1935	14,597	11,581	26,178	40.0	47,793	3,412	1,929	47.6	171	5.9	18,646	104	32.1
Wabash 1936	11,002	10,673	21,675	5.7	35,597	1,780	650	20.8	595	42.0	5,315	119	69.4
1935	11,983	9,112	21,095	3.2	36,530	1,803	608	19.5	523	41.9	4,529	117	59.4
Central Eastern Region:													
Baltimore & Ohio.....1936	59,720	33,407	93,127	16.3	26,998	2,143	993	32.1	551	27.4	8,064	150	55.0
1935	68,870	24,108	92,978	18.5	26,913	2,056	913	30.5	433	23.3	6,368	148	45.9
Central of New Jersey...1936	10,290	11,692	21,982	29.5	26,777	2,356	1,133	32.7	254	12.5	8,186	149	46.9
1935	12,471	9,879	22,350	33.7	26,862	2,294	1,069	31.4	211	10.9	6,826	153	39.7
Chicago & Eastern Illinois.1936	2,340	3,822	6,162	7.6	31,658	1,811	814	29.0	794	41.5	5,256	124	57.8
1935	3,249	3,479	6,728	8.1	26,877	1,525	672	28.3	562	31.1	3,967	132	51.7
Elgin, Joliet & Eastern...1936	8,217	6,977	15,194	5.0	16,591	2,079	1,060	40.5	242	10.0	8,245	119	41.9
1935	7,681	4,078	11,759	5.8	16,747	1,965	973	38.4	236	10.2	6,305	127	34.6
Long Island 1936	563	3,382	3,945	2.6	5,851	764	293	29.3	80	5.3	767	321	31.9
1935	714	3,299	4,013	1.8	5,864	717	254	27.2	61	4.4	604	318	29.4
Pennsylvania System 1936	178,542	66,286	244,828	18.0	34,733	2,476	1,128	31.3	467	23.9	11,549	121	57.1
1935	219,661	55,168	274,829	17.5	33,402	2,369	1,053	29.8	327	17.5	9,116	120	45.2
Reading 1936	22,310	14,354	36,664	8.1	25,303	2,059	1,017	35.4	404	17.9	10,205	146	51.7
1935	28,927	10,041	38,968	10.4	26,067	2,034	962	33.5	305	14.8	8,004	142	41.1
Pocahontas Region:													
Chesapeake & Ohio.....1936	38,903	13,094	51,997	1.0	53,616	3,999	2,166	46.9	1,254	49.0	21,932	79	64.5
1935	38,835	11,959	50,794	1.9	52,323	3,863	2,086	46.5	1,133	44.6	19,002	78	56.2
Norfolk & Western.....1936	30,267	4,709	34,976	2.0	51,651	3,602	1,929	45.9	1,328	50.0	20,504	102	72.4
1935	31,000	5,543	36,543	2.3	49,072	3,424	1,791	43.2	981	38.8	16,756	103	59.3
Southern Region:													
Atlantic Coast Line.....1936	18,189	8,826	27,015	21.3	20,417	1,173	413	18.6	310	25.6	1,639	114	55.7
1935	23,090	7,414	30,504	20.3	18,512	1,079	368	18.1	200	17.6	1,159	117	39.5
Central of Georgia.....1936	3,179	3,905	7,084	3.1	22,224	1,220	493	22.1	591	36.7	2,215	127	69.8
1935	5,578	3,122	8,700	17.5	21,452	1,194	453	20.4	382	27.0	1,781	131	53.4
Illinois Central (incl. Y. 1936	30,752	22,660	53,412	21.3	26,385	1,601	674	27.4	684	39.5	5,745	139	65.1
& M. V.).....1935	42,630	18,411	61,041	34.3	26,587	1,572	641	26.7	486	29.9	4,581	136	56.9
Louisville & Nashville....1936	33,081	12,869	45,950	17.7	25,550	1,718	829	35.2	763	37.1	6,913	132	81.7
1935	38,662	9,123	47,785	25.2	25,292	1,645	792	34.3	574	28.3	5,369	133	65.4
Seaboard Air Line.....1936	9,511	7,696	17,207	2.2	25,624	1,571	593	21.6	577	39.4	2,276	119	53.2
1935	10,551	5,411	15,962	3.9	23,792	1,457	551	21.8	499	34.1	1,836	117	43.5
Southern 1936	21,928	21,880	43,808	15.9	21,618	1,302	523	23.0	528	34.6	3,463	159	57.5
1935	25,329	18,252	43,581	14.9	21,383	1,271	487	21.2	437	31.1	2,829	155	48.9
Northwestern Region:													
Chi. & North Western....1936	34,291	22,999	57,290	6.4	26,809	1,763	645	23.5	367	25.8	2,568	126	51.3
1935	39,556	19,404	58,960	9.1	24,526	1,623	569	22.0	303	21.9	2,063	129	42.6
Chicago Great Western...1936	1,935	4,408	6,343	3.0	31,216	1,800	633	22.0	951	72.0	4,447	138	120.6
1935	1,972	3,529	5,501	2.6	34,528	1,837	653	22.1	897	67.1	3,341	134	82.0
Chi., Milw., St. P. & Pac..1936	41,723	21,071	62,794	2.4	27,288	1,738	700	25.6	509	32.1	2,908	132	76.7
1935	46,346	18,574	64,920	3.0	26,472	1,675	660	25.3	425	28.4	2,488	127	69.2
Chi., St. P., Minneap. & Om.1936	3,701	5,219	8,920	9.8	18,758	1,435	580	25.4	450	28.0	2,587	123	56.0
1935	3,852	4,950	8,802	9.8	19,224	1,332	566	26.0	409	24.1	2,352	128	51.6
Great Northern 1936	35,388	12,764	48,152	6.9	32,731	2,166	946	28.2	533	29.4	3,316	121	52.3
1935	38,517	11,821	50,338	6.6	29,459	1,969	839	26.8	415	24.0	2,638	132	44.1
Minneap., St. P. & S. St. M.1936	12,263	5,181	17,444	3.7	21,341	1,359	562	24.1	399	24.6	1,642	110	86.3
1935	12,961	3,889	16,850	4.3	19,528	1,233	530	24.3	363	21.8	1,445	115	73.8
Northern Pacific 1936	26,738	7,281	34,019	8.8	28,850	1,901	794	25.0	550	32.8	2,987	155	64.0
1935	29,825	6,304	36,129	10.1	26,770	1,780	771	25.5	439	24.8	2,533	162	54.4
Central Western Region:													
Alton 1936	2,280	6,462	8,742	24.1	34,249	1,470	579	24.9	457	28.6	4,334	132	72.6
1935	2,480	6,917	9,397	23.0	32,559	1,409	528	24.3	351	23.8	3,554	127	65.0
Atch., Top. & S. Fe (incl. 1936	61,525	15,019	76,544	9.2	33,411	1,822	613	20.9	533	40.5	3,076	126	77.9
G.C. & S.F. & P. & S.F.).1935	69,745	11,707	81,452	11.0	31,758	1,716	557	20.2	404	32.8	2,488	128	67.1
Chicago, Burl. & Quincy..1936	25,926	20,217	46,143	6.2	28,119	1,609	681	25.7	700	43.4	3,619	132	95.5
1935	28,312	15,718	44,030	7.3	28,149	1,607	672	26.1	672	43.4	3,319	130	88.7
Chi., Rock I. & Pac. (incl. 1936	21,524	14,143	35,667	7.8	24,650	1,383	529	23.1	557	37.9	2,510	144	58.7
Chi., Rock I. & Gulf) .1935	27,192	11,142	38,334	12.2	23,016	1,315	483	22.3	432	31.2	2,008	146	48.1
Denv. & Rio Gr. Western.1936	11,528	4,261	15,789	4.8	22,311	1,461	579	24.9	451	28.7	2,871	175	75.9
1935	12,101	4,014	16,115	6.7	21,705	1,551	625	24.5	402	25.9	2,539	173	61.7
Southern Pac.—Pac. Lines.1936	30,690	30,108	60,798	7.2	33,322	2,100	733	21.3	672	49.2	4,742	109	87.4
1935	33,078	24,846	57,924	8.9	32,313	1,999	671	20.6	471	36.2	3,175	110	62.8
Union Pacific 1936	38,406	21,795	60,201	10.6	40,054	1,923	682	21.4	777	56.0	4,900	124	89.0
1935	40,766	21,213	61,979	13.3	37,130	1,894	656	21.5	643	49.0	4,174	131	79.1
Southwestern Region:													
Mo.-Kans.-Texas Lines ...1936	3,618	6,318	9,936	2.3	30,197	1,655	590	22.2	821	60.6	2,488	92	69.6
1935	5,124	5,368	10,492	3.1	29,502	1,666	572	21.2	668	52.5	2,139	91	65.2
Missouri Pacific 1936	14,057	25,493	39,550	2.6	31,036	1,797	688	24.5	738	48.8	4,101	127	85.6
1935	15,367	20,674	36,041	3.1	29,150	1,675	642	24.2	656	43.7	3,333	129	72.3
St. Louis-San Francisco ..1936	15,197	8,872	24,069	7.1	24,796	1,313	527	25.4	571	36.4	2,811	141	65.7
1935	19,252	6,128	25,380	5.0	23,648	1,287	498	23.9	429	29.2	2,230	141	51.8
St. Louis Southw. Lines..1936	2,469	4,251	6,720	3.1	26,245	1,513	581	21.7	775	52.2	3,054	106	79.5
1935	3,063	2,823	5,886	5.8	24,333	1,412	509	20.0	684	50.4	2,256	104	68.8
Texas & New Orleans....1936	6,484	13,278	19,762	6.0	25,529	1,486	582	23.7	607	38.2	2,718	94	71.3
1935	7,432	11,644	19,076	7.6	22,620	1,367	503	22.4	447	31.0	1,934	96	58.8
Texas & Pacific.....1936	2,543	6,116	8,659	2.5	26,744	1,738	626	22.1	785	56.0	3,545	95	52.5
1935	2,787	5,747	8,534	3.2	25,265	1,813	637	21.1	610	45.4	2,603	95	36.5

Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to Revision.



THREE Mikado Type Freight Locomotives were recently delivered by Lima Locomotive Works, Incorporated, to The Detroit & Toledo Shore Line Railroad.

These locomotives have a total weight, engine and tender loads, of 569,010 pounds, a grate area of 66.8 square feet and total combined heating surface area of 4,534 square feet.

They are fired by Standard Stokers.

THE STANDARD STOKER COMPANY, INC.

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